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28 APRIL 1986

## Worldwide Report

# TELECOMMUNICATIONS POLICY, RESEARCH, AND DEVELOPMENT

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28 APRIL 1986

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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PEOPLE'S REPUBLIC OF CHINA

CHINA'S SATELLITE COMMUNICATIONS DISCUSSED

Beijing XIANDAIHUA [MODERNIZATION] in Chinese Vol 8 No 1, 25 Jan 86 p 21

[Article by Zong Ruhou [1350 3067 0624], Research Institute No 1, Ministry of Posts and Telecommunications: "Satellite Network Television in China"]

[Text] China is a nation of 1 billion people and 9.6 million square kilometers of area. However, 90 percent of the population lives in the eastern coastal regions, while in the vast northwest territory, including Xizang, Xinjiang, Nei Monggol, and surrounding areas the population is sparse. From the point of view of geographical characteristics, the northwest is a bleak and desolate desert, the southwest is undulating hills, and the coastal areas have islands of all sizes spread out like stars, all of which makes it hard to link up all these areas with any kind of surface communications means.

There are three different types of television programs in China: programs from the Central Television Station, provincial television programs, and programs from local television stations in major cities. Programs from the Central Television Station, including television news, entertainment programs, and educational programs, use ground microwave links to transmit to the coast and the majority of provinces; but for those rural areas without microwave links, they can only rebroadcast UHF television signals received from neighboring cities; frontier northwest areas, like Xizang, Xinjiang, Nei Monggol and surrounding areas are a long way from ground microwave links.

In 1972, China began to enter the age of satellite communications, and it was not long before people realized that satellites could play a large role in transmitting television programs to China.

From "Symphonic Music" to International Communication Satellite Transmitters

Satellite communications are characterized by not being limited by distance, and they allow for large communications volumes, high communication quality, small investment, and rapid construction. Quite some time ago, in 1978, China began the experimental broadcasting of satellite television programs. Based on an agreement between the China Electronics Society and the West German Ministry of Space and Aeronautics Research and the French Space Center, the West German and French "Symphonic Music" experimental satellite was used, and a series of television broadcast experiments were done between ground stations

in Shanghai, Nanjing, Shijiazhuang, and Beijing, from which satisfactory results were obtained.

To ensure the feasibility of satellite television using international communications satellite transmitters and small ground stations, from June through October 1982 we demonstrated television broadcasting using the international communications satellite transmitter.

First of all, we erected small receiving stations using 6 meter antennas in Urumqi, Xinjiang and Hohhot, Nei Monggol, and on 30 July 1983 we did a large-scale demonstration of satellite transmitted television between Beijing, Urumqi, and Hohhot through an international communications satellite transmitter over the Indian Ocean and using the Shanghai Hongqiao satellite communications ground station outfitted with equipment of our own design. On-the-spot retransmission of the signal received by each television station was warmly welcomed by the local people, and showed as well that China has already prepared the way for large-scale applications of satellite communications technology.

#### Satellite Network Television of a Preliminary Scale

The success of the television transmission demonstration has led to important decisions regarding development of a domestic satellite communications system. Specifically, they are: to launch China's first experimental communications satellite, and before specialized communications satellites are launched, to take the transitional step of leasing an international communications satellite transmitter. This will allow a gradual link up by satellite of the large coastal cities with the border regions, a link up of areas within the border regions, of coastal islands and offshore drilling rigs with the continent, and of important economic development areas with domestic and international communications networks, all of which will form a domestic satellite communications system in China of an initial scale. By including a satellite network television system, we can transmit Central Television Station programs to all areas of the country, the goal of which is to attain very good quality at a reasonable cost.

A leased transmitter network television system began on 1 August 1985, and began operations under the International Communications Satellite Organization's "Share Plan," and was continued after 1 November from a leased transmitter over the Indian Ocean.

Ascending emission is the responsibility of the Beijing groundstation. The Beijing groundstation will be the main station for the domestic satellite network. It has an 18 meter antenna, currently under construction but just about finished. Before the Beijing groundstation is completely finished, ascending emission responsibility will be that of the Shanghai Hongqiao groundstation with its 10 meter antenna. According to plans for the first period of television reception station construction, 53 satellite television reception stations have already been built in the 16 domestic provinces and



autonomous regions, and they have all been linked to the local television stations. The reception ground stations are for the most part television receive-only stations, and are fitted with GaAs effector low-noise amplifiers and high quality satellite television receivers.

#### Advancement and Improvement

To better develop China's satellite network television broadcast system, in the next few years we will adopt a series of measures that will suit the growth of capacity for program broadcast and the growth of the number of reception stations.

These steps include: according to satellite deployment plans of the International Communications Satellite Organization, we will shift the leased transmitters to satellites that are directed toward the east in order to satisfy the needs of the northeast groundstations; satellite television broadcast channels will be increased to include even more satellite television educational programs and television broadcast programs from the provinces and autonomous regions; the dimensions of the receiving station antennas will be reduced; we will launch our own satellites that will be able to provide similar power; and we will adopt new modes of transmission that will suit satellite television transmission, such as various forms of analog component composite systems.

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POSTS, TELECOMMUNICATIONS POLICIES DISCUSSED

Beijing XIANDAIHUA [MODERNIZATION] in Chinese Vol 8 No 1, 25 Jan 86 p 16

[Speech by Yang Taifang [2799 3141 5364]: "Directions for the Development of Posts and Telecommunications During the 'Seventh 5-year Plan'"]

[Text] At the recently held "National Working Conference on Posts and Telecommunications," Minister Yang Taifang discussed the primary goals for development of Chinese posts and telecommunications during the "Seventh 5-year Plan," as well as certain problems for which solutions should be stressed. We publish below the portion of that speech that concerns telecommunications.

Primary Goals

The overall volume of posts and telecommunications business will reach about 5 billion yuan by 1990 for an average annual rate of increase of 11 percent.

In regard to telecommunications, urban telephone capacity will increase by 3 million subscribers until by 1990 the total number of telephone sets in this country (including subscribers to rural and small exchanges) will reach about 13.5 million; long distance exchange equipment will increase its capacity by 100 million sections, increasing circuits for long distance service by 60,000 lines; provincial capital municipalities, urban economic centers, and open coastal cities will be the initial sites for domestic and international automatic long distance dialing; partial digital communications networks will be established first in the Changjiang delta, the Zhujiang delta, and the Beijing-Tianjin-Tangshan area; a group of satellite communications ground stations will be set up, as well as a preliminary domestic satellite communications system, which will answer the communications needs of border areas and specialized sectors.

Posts and telecommunications research and industry will actively provide technology and equipment for the technical transformation and communications construction of the posts and telecommunications communication networks, will earnestly improve product quality and production capacity for urgently needed communications equipment, and will import foreign advanced technology, will further its absorption and assimilation, and will vigorously develop the technology for programmed exchanges, satellite communications, digital microwaves, and fiber optic communications to provide the necessary follow-up capacity for development in the 1990's.

## Problems for Which to Stress Resolution

### I. Regarding the question of the pace of the development of posts and telecommunications.

Posts and telecommunications are a weak link in the national economy and are in short supply, so that pace should be greater than the average rate of growth for the national industrial-agriculture gross output value. "Recommendations" for the "Seventh 5-year Plan" clearly focus on posts and telecommunications, and we will resolutely place the development of posts and telecommunications in a foremost position. At present national planning has preliminarily determined that the scale of fixed asset investment for posts and telecommunications during the "Seventh 5-year Plan" be at about 10 billion yuan, which is nearly double that during the "Sixth 5-year Plan."

For this reason, the Ministry of Posts and Telecommunications will adopt a positive attitude and do its utmost to give an even better, even faster, and even more real pace to the building of communications. To reduce the gap between communications capabilities and the urgent need of society for communications, we will allow them to be better able during the "Seventh 5-year Plan" to suit the needs of society and to develop in better coordination with the entire national economy.

During the "Seventh 5-year Plan" we will make the most of the benefits from investment, and we will gather our strength to construct a group of major communication projects, as for example: an optic fiber trunk line from Nanjing to Wuhan with urban telephone and long distance exchange equipment, a domestic satellite communications system, assembly lines for programmed exchanges, digital microwaves, and fiber optic communications, and facilities that need to be increased for construction and outfitting of a postal shipping network and routes. We will exert even more effort toward the adjustment of the posts and telecommunications network and toward technical transformation, and toward the linking up of projects already finished or under construction. For example: adjustment, expansion, and supplementing of the first level trunk network for national telecommunications, which needs only about another 170 million yuan investment with which to add from 4,000 to 5,000 circuits for long distance service, which is about the same number that are in the current national long distance level one trunk line; at the same time we will expand the second series of the coaxial cable 1,800 line carrier trunk linking Beijing, Shanghai, and Hangzhou, and will technically transform the 600 line Beijing-Taiyuan-Xi'an microwave trunk with a 1,800 line microwave system.

### II. Regarding the question of restructuring the posts and telecommunications system.

Organizational restructuring of the posts and telecommunications departments will resolutely implement the spirit of the Central Committee in the restructuring of the economic system, and will actively and earnestly develop measures based on the characteristics of the posts and telecommunications departments. We must thoroughly understand the programs and networks and combined services of posts and telecommunications communications, as well as the characteristics of the widespread and spreadout posts and

telecommunications structures. Since this will involve the major questions of conduct and control of communications throughout the entire network and the development and construction of trunklines, we must maintain our unity and strengthen our overall control; in the aspect of invigorating the economy, we must also do what is proper for a particular area to allow enterprises their necessary vitality.

1. We must organically combine microscopic invigoration with the strengthening of overall control.

In the area of communications construction, we want to pay close attention to and control the planning and distribution of networks, the scales of construction, trunkline construction, and accompanying projects, as well as the benefits from investments.

2. In solidifying and perfecting the economic accounting system of the communications enterprises, we will do a good job at specialized checking and will gradually put specialized operations into effect.

3. We will restructure the posts and telecommunications communication network structures according to service flow volumes and directions.

As restructuring of the economic system unfolds with the cities at its center, and as new economic areas form, the posts and telecommunication network structures of the past are already unable to meet objective needs. We must break through the barriers of administrative divisions to carry out a necessary adjustment and restructuring of the posts and telecommunications networks based on service flow volumes and directions. On the one hand, we must link together the spokes by levels according to administrative divisions to guarantee the requirements of party and political leadership; on the other hand, we must meet the increasing needs of lateral relations, as well as the needs of putting through service between sectors and provinces, neighboring counties, and for connecting regions, and must adjust and increase direct postal routes and telephone circuits and reduce unnecessary circuitous routings.

4. Regarding restructuring of posts and telecommunications expenses and fees.

### III. On the problems of quality and of enhancing operations management.

We must first investigate operational problems, and enhance overall decision making and leadership. The telephone is the most convenient and numerous means of communication, while completion of telephone networks creates a basis for the development of other enterprises. For this reason, developing telephone communications should be a long term operational principle of the telecommunications enterprises, and whether urban telephony can develop is the key to the success or failure of telecommunication enterprise operations. We must give preference to finding ways to satisfy the needs for telephone service in the coastal areas, at the same time keeping in mind the coordinated development of the national communications networks.

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PEOPLE'S REPUBLIC OF CHINA

DEVELOPMENT OF CHINA'S FIBER OPTIC TECHNOLOGY DISCUSSED

Beijing XIANDAIHUA [MODERNIZATION] in Chinese Vol 8 No 1, 25 Jan 86 p 17

[Article by Bai Qizhang [4101 0366 4545], Institute of Telecommunications and Transmission: "China's Fiber Optic Technology in Development"]

[Text] Fiber optic technology is a new transmission technology having the outstanding advantages of low loss, high capacity, no magnetic interference, all-dielectric transmission, small size, and light weight, and which has already been applied more and more broadly in many fields. China's research into fiber optic technology began in the mid-1970's, and by 1975 we were able to develop successfully in the laboratory a continuously operating GaAs DH laser, and then the next year a multimode optic fiber (wavelength = 0.85 micrometer) appeared. After 1978, China developed a series of experiments with fiber optic communications systems, which were carried out for the most part between exchanges in the public telephone networks, in urban telephone networks, and in special communication networks. These experiments proved that in telecommunications networks there were advantages to using fiber optic technology over traditional metallic wires, the results being even more remarkable in the area of digital transmissions.

The State of China's Fiber Optic Communications Experimental System

The scope of applications for fiber optic communications systems may be divided into the three categories of junction lines, trunk lines, and subscriber lines. The fiber optic experimental system currently in our public telephone network is installed within a junction line, and field testing of the fiber optic communications system in our long distance trunk network will begin in the near future, while experimental work on subscriber lines is still in the research stage.

The fiber optic communications system installed in Shanghai, Beijing, Nanjing, Wuhan, and Tianjin is our primary experimental system, and is laid between telephone exchanges within the junction network. The digital baud rates of this system are 8.448 megabits and 34.368 megabits; not counting the Beijing system, the fiber optic cable used in the others is composed of graded multimode optic fibers; the method for making the optic fibers is the spatial chemical vapor sedimentation method; in the region of 850 nanometer wavelengths, the attenuation constant of the graded optical fibers is less

than 4 dB/km, while in the 1,300 nanometer range it is used at less than 2 dB/km; bandwidth values measured at the junctions of some experimental systems can be satisfactory for system operation; in the 8.448 megabits per second system, the light source device is an LED, while the 34.368 system uses a laser diode.

In the experimental systems mentioned above, the Wuhan system has been the most remarkable because it has the newest model lines and a long wavelength (1,300 nanometers), as well as being composed of three junctions (2 intermediary junctions). Some fiber optic communication systems of even more advanced performance have been under testing since 1984.

#### How Should China Introduce Fiber Optic Technology Into Telecommunications Networks

The fiber optic technology of many developed nations has already reached the stage of near perfection and high quality, but among developing nations, and especially China, how should fiber optic technology be introduced into communications networks? We must first take into consideration our particular situation.

Demand for service is the most important factor regarding the introduction of fiber optic technology

The growth in volume of various services in telecommunications and the development of new types of services are the motivation behind the introduction of new technology. As non-speech services develop, digital technology will quickly become a part of telecommunication networks, and sustained increases in digital transmissions will greatly accelerate the practical application and constant expansion of fiber optic technology.

Full affirmation of advantages brought by fiber optic technology

The superiority of fiber optic propagation systems allows them to be used in many communications fields. In comparison with traditional metallic wires, they have a broader bandwidth, longer relay distances, lighter weight, and somewhat smaller size. Also, they are not subject to RF and power frequency interference, nor do they constitute a danger from short circuits or discharge.

Economic suitability affects practical applications

Whether fiber optic technology can be applied in practice depends to a great degree upon whether it is cheaper than traditional means of propagation. Because individual prices within various costs vary considerably, accurate economics are difficult. Through certain means of propagation, as for example audio cable, for existing local telephone network symmetrical cable PCM is 2 Mb/s, on newly installed symmetrical cable it is 2 Mb/s, and for newly installed optical cable it is 34 Mb/s, from which can be seen that when communication distances are less than 6 km, AF continuous line cable is the most economical; but for distances above 6 km, it is most economical to use PCM on existing cables. If for other reasons, as for example where capacities

of existing cables are full, the most suitable thing is to use optic fiber to transmit PCM at 34 Mb/s. While for those areas that have no cables, the use of fiber optic communication systems will be very much the most economical.

Taking into consideration the stability and reliability of the system and safeguarding its convenience

To allow fiber optic communication systems to operate stably over long periods, this requires that the entire system, including various components, be very reliable. At the same time, inspection and control of the system is very important to safeguard its convenience.

Based upon an analysis of the aspects discussed above, as well as from the experiences of experiments with fiber optic communication systems, it is clear that in junction networks, because of their suitability for transmitting over long distances and limits to their circuit capacities, it is most economical to use fiber optic technology; in long distance trunk line networks there are still problems with using fiber optic technology, as for example with power supplies, circuit tapping, etc., and as these problems are resolved fiber optic technology will be used more in long distance networks; the application of fiber optic technology to subscriber lines will need to wait until after the full-scale development of subscriber services before it can have a practical significance. This is because the quantities of optic fibers needed for this kind of network are vastly greater than for junction and long distance networks, so these expenses should be taken into full consideration.

Optic fiber technology is still new in China, but it can be predicted that it will be more widely applied here, and will powerfully accelerate the development of China's public telecommunications networks.

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PHILIPPINES

BRIEFS

TV STATION ADMINISTRATORS--A board of administrators have been created to manage and operate the Banahaw Broadcasting Corporation [BBC], Radio Philippine Network [RPN] and the Intercontinental Broadcasting Corporation [IBC]. The board was created under an executive order issued by President Corazon Aquino. The order which took effect immediately was announced by Information Minister Teodoro Locsin Jr. Initially five members were appointed to the board. They are Francisco Licuanan 3d, Manuel Morato, Ninez Cacho-Olivares, Virgilio Yuson and Ricardo Nepomuceno. Under executive order, all members of the board are to come from the private sector. [Text] [Quezon City DZFM Radio in English 0500 GMT 15 Apr 86 HK] /12913

COMMUNICATIONS FIRMS MANAGERS--Transportation and Communications Minister Hernando Perez today said sequestered communications firms will be turned over to new managers. The sequestered firms are the Philippine Long Distance Telephone Company [PLDT], the Philippine Communications Satellite Corporation [Philcomsat], Eastern Telecommunications Philippines Incorporated and the Philippines Overseas Telecommunications Corporation. At the PLDT, Perez said a supervisory committee has been appointed, while at the Philcomsat, there is strong opposition against Carlos Parales as present OIC [Officer in Charge]. He said once matters are ironed out, the ministry will dialogue with the new managers on how these firms should be operated efficiently. [Text] [Quezon City DZFM Radio in English 0700 GMT 14 Apr 86 HK] /12913

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CANADA

## BIDS SOLICITED FOR CONSTRUCTING ANIK E SATELLITES

Toronto THE GLOBE AND MAIL in English 11 Mar 86 p B20

[Article by Lawrence Surtees]

[Text]

### OTTAWA

Telesat Canada has given Spar Aerospace Ltd. of Toronto the first chance to bid on a contract, worth more than \$250-million, to build two Anik E satellites.

The next generation of Aniks will be launched by Telesat in 1990 to replace the older Anik C and D satellites. Telesat is the sole domestic communications satellite operator.

The first Anik E, which will be the 10th satellite launched by Telesat, will be put in geosynchronous orbit 36,000 kilometres above the equator. The second spacecraft will be parked in a storage orbit and kept as a backup.

The two satellites will cost about \$250-million, based on information filed with the Canadian Radio-Television and Telecommunications Commission. Because the Anik E will be much larger than current spacecraft, it will require larger structures and more specialized components, making it more expensive.

Unlike the current generation of satellites, each of which operates at a single frequency range, the Anik E will be a hybrid capable of receiving and transmitting

signals in both the C-band and Ku-band frequencies.

Telesat has two Anik Ds operating in the less powerful C-band range. Those satellites receive signals in the six-gigahertz frequency range and transmit at four GHz. Three higher-power Anik Cs receive signals in the Ku-band at 14 GHz and retransmit at 12 GHz.

Telesat has selected a higher-powered option for the Anik E to allow television programs to be beamed across Canada on a single satellite channel.

The satellite will be equipped with 24 conventional C-band channels, 20 Ku-band channels, and six special Ku-band channels. The special channels will permit experiments with direct-to-home broadcast services.

The Anik E will weigh 2,700 kilograms at launch — more than twice as much as an Anik D — the heaviest satellite placed in orbit by Telesat. It will have a 10-year lifespan.

Although plans are to launch in 1990, the Anik E may not come into service until about 1992.

Telesat issued a request for proposal to Spar in December. Spar's proposal and bid are to be sent back in April. Telesat hopes to award the contract by October.

/9274  
CSO: 5520/71

CANADA

## COMMUNICATIONS MINISTERS DIFFER ON DEREGULATION

Vancouver THE SUN in English 28 Feb 85 p A10

[Text]

MONTREAL (CP) — British Columbia was the odd man out Thursday as nine provinces, the federal government and a territory called for caution and cooperation in telecommunications policy, while B.C. called for an "open skies" policy.

During the first day of a federal-provincial conference on the telecommunications system, ministers from all provinces except B.C. said that any moves must be cautious, to ensure that a system that works well now is not disrupted.

Displaying charity uncharacteristic of such conferences in the past, the ministers of communication promised each other they would cooperate to keep the Canadian system strong and affordable.

But B.C. International Trade Minister Pat McGeer, in a long and colorful attack on federal regulators, said Can-

adians really want a communications free-for-all.

As federal Communications Minister Marcel Masse scowled and twirled his half-glasses, McGeer called for the dismantling of

the Canadian Radio-television and Telecommunications Commission, the main federal broadcast and telecommunications regulator.

Federal agencies "have no place in the bedrooms of B.C.," he said.

But McGeer stood alone in his appeal for freedom of electronics. The other provinces all advocated varying degrees of regulation to protect what is generally agreed to be one of the

best communications systems in the world.

They all see a threat in U.S.-style deregulation, which followed the 1984 court-ordered breakup of the \$50-billion American Telephone and Telegraph Co.

Studies have shown that consumer rates for basic service jumped 26 per cent in two years after AT&T was dismantled.

But the governments, in working toward a new national policy, are also mindful of calls from some telephone companies and from businessmen, who say lower long distance rates will help the economy.

Long distance rates are higher in most parts of Canada than they are in the United States, providing a powerful temptation to some companies to bypass the Canadian system and use low-cost American rate discounters.

/9274

CSO: 5520/71

CANADA

## BELL CANADA SPENDING PLANS, REORGANIZATION DISCUSSED

### Spending Projections

Toronto THE GLOBE AND MAIL in English 10 Mar 86 pp B1, B7

[Article by Lawrence Surtees]

[Text]

HULL, Que.

Rising demand for telephone services has led Bell Canada to predict that it will spend \$9-billion in the six years between 1985 and 1990, mostly on new equipment to provide local and long-distance service in Ontario, Quebec and the Northwest Territories.

Underlying this dramatic spending program is the utility's assumption that its subscribers will dutifully spend more money on their monthly phone bills and make more long-distance telephone calls throughout the next five years.

Bell Canada, a unit of Bell Canada Enterprises Inc. of Montreal, estimates that its almost six million subscribers will increase their long-distance use by 41 per cent between 1985 and 1990. Bell forecasts that more than 1.3 billion long-distance calls will be made in 1990, compared with 923.8 million last year.

In 1986 alone, spending to meet new demand will total \$961-million, 64.5 per cent of Bell's construction program, compared with \$890-million in 1985, 65.6 per cent of last year's total capital spending.

Expenditures in the demand category are allocated for switching gear to route subscriber calls, transmission equipment and subscriber telephone sets.

These predictions are made in Bell's latest construction program

review, a document filed annually with the Canadian Radio-Television and Telecommunications Commission. In addition to outlining the company's planned capital spending, the review updates Bell's five-year forecasts.

However, Bell's predictions will be subject to scrutiny by consumer groups, provincial governments and industry associations at a CRTC hearing that begins today. This year's review also serves as an important prelude to a more detailed proceeding, set to begin in June, that will examine Bell's economic performance.

Bell had revenue of \$5.76-billion in 1985, of which more than \$1.35-billion was spent on capital projects. The company expects to spend \$1.49-billion in 1986, up 10 per cent from last year and 22 per cent more than it said it would spend in its 1985 forecast.

Besides the money being spent on new equipment to provide local and long-distance service, major replacement programs and special projects also account for a significant share of the spending.

Bell has 23 projects under way, each of which has a budget of more than \$1-million. These include a 10-year-old program to install digital switches that can route computer as well as voice telephone calls, and a program to replace copper wire with

fibre optics.

The major change from last year's review is the substantial jump in forecast customer demand.

Bell has increased last year's forecasts of new subscribers for the five-year period from 1985 to 1989 by 29 per cent, meaning more than 270,000 new telephone numbers. Bell has also revised its estimates of long-distance use and predicts a 46 per cent gain.

The new forecast says 158,200 business customers and 131,500 residential subscribers were added to Bell's network in 1985. That compares with last year's forecast of 131,935 new business customers and 118,500 residences.

Bell has changed its forecasts for 1986 and now predicts that it will get 124,300 more business customers and 128,000 more residential customers.

But there is little spare capacity in its network, Bell says, so demand will have to be met with new equipment. That means higher spending levels, but also cost cutting in other areas.

The increased use of automation is one way Bell is going about cutting expenses. A \$69.1-million, eight-year project to automate customer records is now entering its second phase. By the end of 1988, Bell will have reduced its staff by 800 people because of the project. It expects annual savings of \$36-million.

Bell has increased last year's forecasts of spending on computer

systems by 51 per cent. It will spend \$63.7-million this year, compared with \$50-million in 1985, and estimates that it will spend \$96.8-million in 1987.

But the company is also improving its ability to meet demand through spending in other categories.

Bell's contribution to national projects undertaken by the nine telephone company members of Telecom Canada is also increasing. Such projects accounted for 5.5 per cent of Bell's 1985 capital spending. That figure is forecast to rise to 8.5 per cent this year and 10.1 per cent in 1987.

A big chunk of this money can be found in the spending category for intercity long-distance equipment. Bell will spend an extra \$43.1-million this year on a fibre optic cable project to link Toronto with the Ontario-Manitoba boundary and Montreal with the Quebec-New Brunswick boundary.

#### Divisions Consolidation

Ottawa THE CITIZEN in English 5 Mar 86 p C7

[Text]

Bell Canada will consolidate its Dataforce third-party equipment maintenance division and the recently-acquired TRW Data Systems into one maintenance organization — Bell Technical Services Inc. — effective May 1. Bob Cheriton, previously general manager of TRW Data since it was acquired by Bell in 1985, has been appointed president of the new firm. Bell expects the new firm will capture a 25-per-cent share of the burgeoning \$50-million Canadian third-party repair and service market.

/9274

CSO: 5520/71

CANADA

TELESAT CANADA MARKET STRATEGY DISCUSSED

Toronto THE GLOBE AND MAIL in English 6 Mar 86 p C15

[Article by Lawrence Surtees]

[Text]

Telesat Canada hopes to double the amount of revenue from business customers in the next five years by developing new niches in the private satellite network market.

Canada's sole domestic satellite communications carrier currently owns five satellites in orbit 22,300 miles above the equator. Until recently, however, the major use of the satellites has been for broadcasting video images.

But changes in the way Telesat can do business, coupled with the sharing of expensive facilities and reduced equipment costs are expected to increase demand for satellite-based business services.

Voice and data managers in the business community can now deal directly with Telesat to lease services and to plan or install networks. The change became effective last July.

Prior to that date, the terms of Telesat's agreement with the telephone company members of Telecom Canada required users to lease services from the telephone companies. And the telephone companies would gain a 12 to 20 per cent mark-up on the price of a satellite channel.

Telesat currently charges between \$70,000 and \$100,000 a month for a full channel. Prices vary, depending on what type of satellite is used — Telesat uses two kinds — and the number of options requested.

Telesat decided to break from the telephone companies' marketing

power when Telecom Canada cancelled its short-lived trial of a satellite business network, dubbed Stratoroute 2000, in late 1984.

"We are now out there selling corporate satellite networks and it will take about one to two years to get several in place," said Eldon Thompson, president of Telesat Canada. "I don't think there will be any great spurt in the first couple of years, but then no one else has ever sold satellite networks in Canada."

Communication satellites operate like a large microwave relay. Unlike other transmission media, however, they can be used to send messages into any terrain over any distance. Expansion of some types of networks only involve the addition of more ground-based receiving antennas.

The price of satellite transmission is "distance insensitive" because it costs the same to send a message across the street as it does to send it to the Arctic.

Despite the construction of nation-wide fibre optic networks throughout North America, satellite technology is expected to remain competitive.

"Our key strategy is to find niche markets that are not erodable by the telephone companies and fibre optics," said Richard Jestin, director of Telesat's Anik Systems Division.

He is in charge of all non-broadcast markets at Telesat. Of forecast revenue of \$105-million last year, non-broadcast users contributed revenue of \$45-million.

"But I think that can be increased

to \$100-million in the next five years, or about half of forecasted revenue of \$200-million," Mr. Jestin said.

Some of the applications of private networks explored recently by Telesat users include:

- Monitoring the hydro-electric power network operated by Saskatchewan Power Corp.;

- Directing air traffic in a corridor of the northeast Arctic by linking an Arctic airport with air traffic controllers at Montreal's Dorval Airport;

- Establishing communication links with remote logging camps in northern British Columbia;

- Using a special dish to set up links between the mainland and offshore oil drilling rigs.

Several of these networks use special equipment made by domestic manufacturers. The Dorval air traffic control system uses the Sky-switch system made by SED Systems Inc. of Saskatoon; the B.C. logging camp system uses equipment made by Microtel Ltd. of Burnaby, B.C.; and the oil rig dish was built by Spar Aerospace Ltd. of Toronto.

In the United States, there are more than 30,000 small earth stations hooked up to private networks. The largest single purchase yet announced, of 10,000 dishes by Federal Express for its Zapmail customers, will increase that total.

Other potential large users of corporate satellite networks include the major banks, financial institutions, companies with many branch offices and oil companies.

"The rise of automated bank teller machines (ATMs) and the prospect of large, shared ATM networks may be one market for Telesat," Mr. Jestin said.

But two new Telesat services are aimed at small business. "Telesat's approach will be to fashion common user services structured so that small organizations can enjoy the benefits of shared facilities."

The first of these services is called Anikom 100. A subscriber to this service uses customer-owned receive dishes and shares one of Telesat's regional uplink dishes.

Because the service uses spread spectrum technology to spread computer data signals over a wider

frequency band width, there is more efficient use of the satellite channel, also shared with other users.

Total monthly charges depend on the data transmission speed sought by the user, ranging from a slow 45 bits per second to 19.2 kilobytes per second. For \$1,000 (Canadian) a month, users can send data across Canada at a transmission rate of 75 bits per second; the faster rate of 1,200 bits per second costs \$6,800.

A network operating at 600 bits per second with 50 earth stations would cost \$93 a month per node, regardless of where the nodes were installed. In comparison, a 200-mile link on a terrestrial private line between Windsor and Toronto would cost \$350 per month.

Users can use short-haul terrestrial lines to send data to the shared uplink dish.

Each node on a customer's network is equipped with a small satellite antenna (about 1.2 metres in diameter) and a desktop controller that attaches to a microcomputer or other terminal device. The controller functions as a modem and multiplexer.

"We believe the real future in satellite communications lies in the use of VSAT, or very small aperture terminals, technology," Mr. Jestin said. As the size of the terminals decrease, the cost falls.

Currently, each terminal and dish costs about \$6,000.

Telesat is also exploring the construction of Teleports in large centres. The first such shared antenna park will likely be built in downtown Toronto.

But Telesat is going to face stiff competition from the telephone companies, which are not anxious to see their private line customers switch to satellites.

In its decision rejecting CNCP's application for long-distance competition, the Canadian Radio-Television and Telecommunications Commission ordered the telephone companies under federal jurisdiction to allow the resale and sharing of their private line networks.

Both Bell Canada and British Columbia Telephone Co. Ltd. filed new rates for their private line services which include substantial reductions that increase over the distance of the hookup.

CANADA

## MITEL, TRILLIUM TELEPHONE MARKETING EXAMINED

### Mitel Marketing Plans

Toronto THE GLOBE AND MAIL in English 13 Mar 86 p B14

[Article by Lawrence Surtees]

[Text]

Mitel's new owner hopes to restore it to profitability by stepping up direct marketing efforts in the United States.

However, Deryk Vander Weyer, Mitel's newly elected chairman, would not predict when the company might return to the black. It has had losses in nine of the past 11 quarterly periods totalling more than \$110-million.

"Although we (the directors) have a duty that encompasses getting the company to return to profitability, we cannot attempt to record a short-term profit at the expense of the company's integrity and its research and development program," said Mr. Vander Weyer, who is also deputy chairman of British Telecommunications PLC of Britain.

British Telecom acquired a 51 per cent interest in Mitel Corp., which is based in Kanata, Ont., on Tuesday, paying \$322.1-million for more than 40.2 million treasury shares. The bulk of the payment will be used to retire debt.

Mr. Vander Weyer indicated that the new owner will proceed cautiously with belt-tightening. He likened the task facing British Telecom to a "balancing act."

"Profit will not simply come about by cutting costs, which, if taken to extremes, can ruin the integrity of a high-technology company. We think we can also greatly increase sales, partly by developing future products, by taking new products to market and marketing

current products more aggressively."

British Telecom has targeted the U.S. market for greater attention and will have to intensify its direct marketing there, Mr. Vander Weyer said. "We admitted that there has been some weakness with Mitel's positioning in the United States, and those problems will be overcome."

He expects the British Telecom takeover to translate into higher revenue for Mitel. He said Mitel had lost many potential customers because of doubts about its financial future.

## Trillium Growth Rate

JPRS-TTP-86-011  
28 April 1986

Ottawa THE CITIZEN in English 11 Mar 86 p F7

[Article by Louise Dickson]

[Text]

"We're going like gangbusters as profits rise," boasts an excited Michael Latreille.

The chief financial officer for Trillium Telephone Systems Inc. claims the company, which manufactures sophisticated electronic telephones, has the highest growth rate of any high-technology company in Kanata.

But Graeme Kirkland, president of Toronto's Third Capital Corp. and editor of *The Canadian Technology Investment Letter*, says Trillium has the highest growth rate of any high-tech company in Canada.

In the three months ended Nov. 30, 1985, Trillium showed a growth of 548 per cent over the same three months in 1984, said Kirkland.

Trillium Telephone Systems Inc. was founded in September 1983 by president Gratham Neathway and executive vice-president Paul Wilker, two Mitel vice-presidents.

Neathway, then vice-president of engineering for the small systems group, and Wilker, then vice-president of product management, wanted to concentrate on the telephone system needs for small business. The product would require different marketing and management from Mitel's other products.

Mitel was receptive to the idea of setting up a subsidiary, invested the original \$12 million and now retains a 70-per-cent ownership of Trillium. The remaining 30 per cent is owned by outside investors and company employees.

In March, Trillium received a repayable research and development grant from the Department

of Regional Industrial Expansion worth up to \$1.72 million from the federal government.

Trillium's phones are geared to the need of small businesses, banks, restaurants, retail stores and professional offices.

Its first product was the TalkTo 109, a telephone system that handles up to five extensions and four intercom units on a single telephone line. The 109 can be programmed to provide security and energy management functions such as automatic light and appliance controls.

The product was not successful in North America where cordless telephones and single line sets were much cheaper, but sold very well in international markets of Sweden, India and Asia.

Trillium's new, more successful, key systems products include TalkTo 1032 which has 10 outside lines and 32 extensions; TalkTo 616 with six outside lines, 16 extensions; TalkTo 308, three outside lines, with eight extensions and the TalkTo 208 with two outside lines and eight extensions.

The phones have speed dialing, conferencing, paging and holding features.

Because Trillium's market is dealers, Latreille attributes a great part of the company's success to its marketing support program and the co-operative advertising system with dealers.

There are 40 authorized Trillium dealers in Canada, selling to Alberta Government Telephones, Edmonton Telephones, British Columbia Telephone, Maritime Telegraph and Telephone and Northwest Telephone.

There are 300 dealers in the U.S. including Centel, Ohio Bell,

Wisconsin Bell, Illinois Bell, Michigan Bell, GTE and J.C. Penny.

Latreille claims the quality of the products is the main reason for Trillium's strong showing.

"We have an annual return rate of 2.5 per cent compared to 8 to 10 per cent for other companies. It's probably the best quality of any key telephone system," he says.

In the 1985 fiscal year, Trillium had \$14.8 million in sales. In the first three quarters of the 1986 fiscal year, Trillium had \$37.5 million in sales.

Latreille says he thinks sales for the full 12 months will be in excess of \$50 million. He's predicting a growth rate in excess of 25 per cent for the fiscal year 1987.

The company lost \$743,000 in fiscal 1985, but in the first nine months of 1986 it showed an after-tax profit of \$3.4 million.

Latreille says company strategy is to firm up the dealer base to make it stronger than it is now.

"We aim to get more dealer loyalty," he says.

In Asia, Trillium's strategy is to move into the Hong Kong market and the individual marketplace in China.

The company has applied to receive British Telecom approval to sell key systems in the United Kingdom and is now talking with companies in France and Italy to get their system licenced.

Trillium's main competitors are AT&T, Tie/Communications Inc., Executone and NEC.

Currently, Latreille says Trillium is listed as number seven in the U.S. and number two in Canada, behind Tie/Communications Inc.

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CSO: 5520/71



CANADA

USED TELEPHONE EQUIPMENT SOLD TO CHINA

Vancouver THE SUN in English 3 Mar 86 p B8

[Text]

British Columbia Telephone Co.'s Chinese connection is helping the company gain a foothold in a profitable new market.

Telecommunications Services International, an overseas marketing arm, was established by B.C. Tel two years ago in an attempt to diversify as competition developed on the domestic market.

TSI recently signed a \$30-million deal to sell used switching equipment to mainland China.

China, with more than a billion people, has fewer than five million telephones. By comparison, there are about 16 million phones in Canada.

U.S. companies, along with government-controlled telephone firms in Europe, have moved quickly in the last two years to take advantage of the opportunities in China.

"The competition has been tremendous . . . cutthroat, in fact, but we've made some good

friends and we have some strong advantages," said Jim McIlwaine, managing director of Telecommunications Services.

TSI's ability to draw on the experiences of the significant number of Chinese people in B.C. Tel has allowed it to win the trust of officials in China, said McIlwaine.

"We have people who can speak the two languages — Mandarin and Cantonese and we have these people in all areas of the company, from marketing to information services."

When dealing with technical matters, said McIlwaine, speaking the language is important.

"I can smile a lot, go to a lot of banquets, but there's not a lot I can do. In our company, we have people who understand our network, understand the Chinese culture."

The contract for switching equipment for 500,000 telephone lines was signed with Chinese officials in Guangzhou (formerly Canton), Vancouver's sister city.

McIlwaine said the Chinese had initially been reluctant to buy what he calls displaced equipment. But he said they were eventually convinced that buying the used equipment would allow them to stay within their financial constraints.

"It's a significant saving to them and its good for another 20 years or so."

TSI has a staff of 12, involved primarily in marketing.

"It's really a small investment for a potentially large return," said McIlwaine.

TSI also is discussing with Thailand, Sri Lanka and Indonesia the possibility of acting as consultant to the state-operated telephone systems in those countries.

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CSO: 5520/71

CANADA

## CRTC HEARING TO CONSIDER BROADCAST OWNERSHIP ISSUES

Toronto THE GLOBE AND MAIL in English 15 Mar 86 pp B1, B4

[Article by Edward Greenspon]

[Text]

The highly profitable Canadian broadcast industry will begin to find out on Monday just how relaxed the federal communications regulator has become toward the old bugaboos against corporate concentration in broadcasting and cross-ownership of newspapers and electronic media.

The outcome of a high-profile hearing before the Canadian Radio-Television and Telecommunications Commission in Montreal could further accelerate the already quick pace of consolidation of media ownership in Canada.

CRTC commissioners will consider arguments from Power Corp. of Canada that it be granted permission to buy Télé-Metropole Inc. If that deal is approved, Power Corp. chairman Paul Desmarais would be at the helm of Montreal's largest commercial television station and its second-largest French-language newspaper, La Presse.

Power's application, virtually unthinkable in the Kent Commission days of the early 1980s, is the most striking example of a new era of deal-making in the communications industry.

"We're at a stage where you can drive a transport truck through what used to be the hard and fast rules of the commission," said Peter Legault, a media specialist and partner in Pollitt Legault & Co. Inc. of Toronto. "Right now, I would advise anybody to take a run at it because the commission is so wide open."

Few expect the CRTC to tighten up under what various analysts call its new laissez-faire approach to regulation. Under the chairmanship of André Bureau, the commission has displayed more concern with matters such as the financial strength of applicants than with concentration or cross-ownership.

The Conservative Government signalled support for this approach last May by cancelling, without comment, a 1982 Cabinet directive that

the CRTC focus on cross-ownership in its deliberations.

The directive is known to have been applied just once during its short life, in a 1983 case involving the broadcast licence of New Brunswick's Irving family, widely thought to be the most pronounced case of media cross-ownership in Canada.

K. C. Irving and his two sons own all four major newspapers in New Brunswick and one of two television systems, as well as interests in transportation, pulp and paper, mining and petroleum. Last September, the CRTC quietly extended the Irvings' licence for a further two years without commenting on cross-ownership.

David McKendry, regulatory industries analyst with the Consumers Association of Canada, said the CRTC's message to the Irving group in 1983 — to "rearrange its affairs" within 27 months — amounted to just a rap on the knuckles in any case. The commission was relieved to have the directive withdrawn, he said.

"It was as good as telling the industry that cross-media ownership is fine, and concentration of ownership is fine, and this Government isn't concerned about them."

Media magnates — from Power's Mr. Desmarais to the Bassett and Eaton families of Baton Broadcasting Inc. to Allan Waters of CHUM Ltd. — are receiving the CRTC's signals loud and clear and are expanding their operations through acquisition.

The rewards from increasing their stakes in broadcasting are considerable. Most of Canada's 79 private television stations are living up to the reputation that ownership is a licence to print money, returning after-tax profits in 1984 of \$89.3-million.

Broadcasters' average return on equity — which is calculated along with radio stations, usu-

ally less profitable than TV — was 18 per cent.

Communications lawyer Charles Dalfen, former vice-chairman of the CRTC, said there has been a subtle shift in broadcast regulation in Canada and the United States. Instead of the onus being on applicants to prove why concentration will not be harmful, the burden is on opponents having to make a strong case for interfering with a commercial arrangement.

The CRTC seems to be balancing off the concentration trend somewhat, he said, by trying to issue more broadcast licences.

"What does appear to be clear is that there are an increasing number of big players in the game and a decreasing number of small Ma and Pa shop operations."

Among the victims of the trend is one of the pioneers of Canadian broadcasting. William Plaunt, president of United Broadcasting Ltd. of Sudbury, won Canada's first private television licence in 1953.

He said he is getting out of broadcasting because of the dominance of Mid-Canada Communications (Canada) Corp. in Northern Ontario. In Sudbury alone, Mid-Canada owns the CTV and CBC affiliates, the cable company and three radio stations the CRTC let it buy last year.

"You might say we got squeezed a little bit," Mr. Plaunt said of his remaining two radio stations, whose sale only awaits CRTC approval.

The CRTC no longer values local ownership, he said. Through subsidiaries, Mid-Canada is controlled by CUC Ltd. of Scarborough, a major cable operator in Southern Ontario.

Certainly, the bigger players seem to do best in broadcasting. The largest 10 per cent of broadcasters, by assets, accounted for about 40 per cent of revenues and 80 per cent of profits in 1984, according to Statistics Canada.

In Saskatchewan, Baton has

gobbled up three of its four private television competitors in the past few months. The concentration is designed to strengthen existing operators at the expense of an expected new television station in Regina.

A number of years ago, John Bassett, until recently chairman of Toronto-based Baton, told an interviewer: "If I had unlimited wealth and the CRTC would let me have all the electronic media I wanted, I'd be a real pig."

In 1984, before Baton's acquisition streak, Saskatchewan broadcasters were raking in a phenomenal 40 per cent return on equity. But Baton and minority partner Harvard Developments Ltd., owned by Regina's powerful Hill family, have complained that the market is not rich enough to support an additional station.

David Bond, president of the Canadian Association of Broadcasters, said the degree of concentration in Saskatchewan — and elsewhere — is not cause to worry "that you're getting something equivalent to Pravda."

"I would be concerned if all the broadcasting outlets and all the newspaper outlets were controlled by one source, but I don't think that is the case."

Just how far the CRTC agrees with Mr. Bond will be demonstrated in the Power Corp. case.

Michel Perrault, a Montreal-based communications analyst with Alfred Bunting & Co. Ltd. of Toronto, said it is the strongest test yet of the CRTC's attitude toward cross-media ownership. He believes Power Corp. was emboldened to make the purchase after seeing the CRTC grant a licence for a new French-language TV station in Montreal to CFCF Inc., which already owned a TV station, two radio stations and a cable company in the city.

Mr. Desmarais' conglomerate is trying in advance of the hearing to

minimize the cross-ownership issue before the commission. While the key conflict between owning Télé-Metropole's CFTM-TV and La Presse remains in Montreal, a complicated transaction would lessen Télé-Metropole's influence over broadcasting in Sherbrooke and Trois-Rivières, where Power Corp. also owns daily newspapers.

The deal revolves around Pathonic Communications Inc., operator of the two TV stations. Pathonic, 33.5 per cent owned by Télé-Metropole, in turn owns 6 per cent of the equity and 46.8 per cent of the voting shares of publicly traded Télé-Capital Inc. of Ste-Foy, Que. Télé-Capital owns two TV and two radio stations in Quebec City, a TV station in Rimouski and a radio station in Laval.

Télé-Capital is proposing a reverse takeover of Pathonic. Rather than its significant television holding in Sherbrooke and Trois-Rivières, Télé-Metropole — and therefore Power Corp. — would be left with just 10.3 per cent of the enlarged Télé-Capital.

More important for the CRTC, which cares more about control than ownership — Télé-Metropole would see its voting shares in Télé-Capital fall to 4 per cent from 15.7 per cent.

Although Paul Vien, chairman of Télé-Capital, said the deal is "totally unrelated" to the Power Corp. situation, other observers believe it shows some sensitivity by Power Corp. to the cross-ownership issue.

Despite the CRTC's new light-handed disposition, the commission has said cross-ownership will be discussed at the Montreal hearing. With the most extreme case yet before it and a sprinkling of commissioners recently issuing rare dissents to decisions that increased concentration, some analysts are not convinced the outcome is a foregone conclusion.

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CSO: 5520/71

CANADA

## CANADIAN ASTRONAUTICS LAUNCHES NORTHERN LIGHTS STUDY

Ottawa THE CITIZEN in English 11 Mar 86 p F13

[Article by Amy Jo Ehman]

[Text]

After 11 years of planning, studying and designing high technology products, Ottawa's Canadian Astronautics Ltd. is finally where it has always wanted to be. In outer space.

On Feb. 21, the company sent its first outer space payload into orbit on board the Swedish satellite *Viking*, rocket-launched from the European Space Agency's launch site in the jungle of French Guiana.

The \$4-million project, funded by the Canadian National Research Council's Canada Centre for Space Science and launched on the *Ariane* rocket, is comprised of two ultraviolet cameras that will photograph the northern lights.

Scientists will use the information gathered to learn more about the northern electrical phenomenon — why it disrupts radio communications and if it has an effect on the climate.

The first photographs began arriving in early March and the project has brought international recognition to the small Ottawa firm, which employs about 300 people.

"That contract was a monumental event for the company because eventually that's what we wanted to do — to build stuff for space in competition with SPAR Aerospace," said Vinit Nijhawan,

marketing and sales manager of the company's space group.

The company was started by three engineers, James Taylor, Bill Cox and Michael Scott in 1974, after the trio left Telesat Canada.

At Telesat they worked together on Canada's Anik satellite, which was successfully launched in 1973.

The first projects were of a consulting nature, until the company landed contracts from Canada and the United States in 1979 to develop a ground terminal for the satellite-aided search and rescue system (SARSAT). The system revolutionized rescue operations of aircraft and boats by using a satellite to pinpoint distress signals.

The company has had an average annual growth of 30 per cent and has shown a profit every year. Although profit figures are not released, Nijhawan says 1985 sales were about \$20 million and he is projecting sales of \$30 million in 1986.

The success of the *Viking* project led to additional contracts with Sweden, and a \$3-million contract with Britain for a light weight, collapsable antenna, unique because it can both transmit and receive signals, for use

on military communication satellites.

The company is working on several space shuttle-related projects and has begun studies for experiments aboard a U.S. space station scheduled for operation by the 1990s. It has also introduced a new series of high-technology products in the fields of defense electronics and military training.

Sixty per cent of sales are domestic, but, says Nijhawan, "a good part of that business is for joint projects involving outside agencies, or with outside countries."

The firm had to struggle to get some initial contracts with the Canadian government, Nijhawan said.

CAL's opportunity to show the federal government it could compete with SPAR Aerospace came in 1983 when the government tendered a joint project with NASA to be launched as part of a shuttle-based space plasma laboratory in 1989.

"(SPAR) came up with a cost in the \$20-million range . . . CAL came in with a price of \$14.5 million."

"There's going to be so much business in the future that there aren't going to be enough (qualified) people to do it."

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CSO: 5520/71

JAMAICA

GOVERNMENT TAKES FIRST STEP IN BROADCASTING PRIVATIZATION

FL071812 Bridgetown CANA in English 1643 GMT 7 Apr 86

[Text] Kingston, 7 Apr (CANA)--Gloria Lannaman, general manager of the state-owned Jamaica Broadcasting Corporation (JCB) for the past three years, was transferred today to the prime minister's office to take charge of government's plan to privatize the corporation and develop a second television channel.

Garth Rose, who has been acting as JBC general manager since late last year because of the illness of Mrs Lannaman, continues in that position, the prime minister's office announced.

The government says it will lease the morning section of JBC Television Service to private operators, but would retain 25 percent shareholding.

It would also lease JCB's AM radio and three regional stations on the same basis, while it would maintain full control over JBC FM service.

The government plans also to develop a second television channel devoted to public affairs and high quality entertainment and to eventually privatize all of the existing television channels. It will also sell the 25 percent shares the government holds in the second radio station here, RJR.

The policy was announced in mid-1985 and Lannaman's appointment has been the most significant development since then towards implementation.

JBC's credibility has been questioned under successive administrations and it has been accused of blatant partiality to government in its reporting.

/9274

CSO: 5540/055

MEXICO

BRIEFS

DIGITAL EQUIPMENT FROM ERICSSON--Ericsson's Mexican subsidiary company (Teleindustria Ericsson SA) has received an order with a total value estimated at 502.5 million [Swedish] kronor for delivery of analog and digital transmitting equipment to the Mexican telecommunications authority (TELMEX). The orders for transmitting equipment are worth 330 million kronor, including analog FDM equipment, as well as a digital 30-channel PCM multiplex system, with some 800 so-called line repeaters and 6,900 line terminals. [Text] [Helsinki HUFVUDSTADSBLADET in Swedish 13 Mar 86 p 12] /6662

CSO: 5500/2037

AFGHANISTAN

BRIEFS

PAKTIA PROVINCE TV ESTABLISHED--Kabul, 23 Mar (BAKHTAR)--About two hundred workers have been organized in the Council of Trade Unions of Paktia Province, bordering Pakistan. Four primary organizations of trade unions and three unions of craftsmen have been newly established in that province during the last Afghan year (ending 20 March 1986). Trade union primary organizations are being organized in many towns and villages of the province. Right now about 60 such organizations are functioning throughout that province. [Text] [Kabul BAKHTAR in English 0424 GMT 24 Mar 86 LD] /9274

NEW RADIO STATION--Kabul, 22 Mar (BAKHTAR)--A new radio station under the name of Afghan "The Voice of Afghans" has started broadcasting from Kabul in Dari and Pashto languages on the first day of the new Afghan year (begun 21 March, 1986). This radio station is devoted to reflect the present day socio-political and cultural life of the people and will broadcast programs for four hours daily. Eleven provincial radio stations along with three big radio stations in the capital are functioning throughout the country at present. These radio stations are broadcasting 83 hours round the clock [as received] whereas during the pre-revolutionary years it was only 20 hours a day. The state of the DRA plans to increase the radio broadcasting up to 150 hours daily within the next five years. [Text] [Kabul BAKHTAR in English 0433 GMT 23 Mar 86 LD] /9274

CSO: 5500/4730

INDIA

## OFFICIAL SPEAKS AT TELECOMMUNICATIONS CONFERENCE

### Network Panels

Calcutta THE SUNDAY STATESMAN in English 16 Mar 86 p 16

[Excerpt] Addressing a conference on the Integrated Development of the Telecommunications Sector, Mr S. Ravi, Joint Secretary of the Department of Electronics, Government of India, said in Calcutta on Saturday that two working groups were being set up by the Centre to recommend an integrated communications network in the year 2001, and for providing a business communications network for the transfer of data and the exchange of messages, without voice, through satellites. He said that initially the network would cover 100 towns of the country, each linked to the network by either Very High Frequency (VHF) or Ultra High Frequency (UHF) wireless systems.

Mr Ravi said the Union Government had decided to grant letters of intent to private sector units for manufacturing components and equipment. He added that private entrepreneurs would have to satisfy certain minimum conditions specified by the Centre for Development of Telematrix for obtaining manufacturing licences.

Delivering the keynote address, Mr Rajive Kaul, chairman, Association of Indian Engineering Industry (Eastern Region), said that for the growth of professional telecommunications equipment in the country, a strong base for the indigenous manufacturing of professional components was essential. He said that while the Government had recognized this factor, there still remained some contradictions in its policies which needed to be rectified.

### Telecom Import Policy

Calcutta THE TELEGRAPH in English 16 Mar 86 p 4

[Text]

Calcutta, March 15: The Union government, which has already announced its import policies for telecom switching and terminal equipment, is expected to come out with its policy for importing transmission equipment, within the next few months.

A steering committee on technology transfer (Scott) is expected to reach a decision on import of digital microwave, digital multiplexing and digital UHF equipment by June, Mr S. Ravi, joint secretary, department of electronics (DoE), told newsmen today at the end of a



national conference on integrated development of the telecommunications sector. The conference was organised by the Association of Indian Engineering Industry (AIEI) here.

The government is also in the process of evolving a graded import duty structure for raw materials, components and finished products, among other things. The structure will be rationalised so that raw materials attracted the lowest duty and finished products the highest, Mr Ravi said.

The government would also periodically review the OGL list for electronic components. It would consider taking a component being manufactured indigenously off the OGL list from time to time.

"We want to make a cost analysis of end products and DoE might undertake a study along with the DGTD and concerned manufacturers. We are considering proposals to see that indigenous production can be comparable pricewise in the international market," Mr Ravi said.

He said a working group was being constituted to draw up a perspective master plan for an integrated telecommunications network for 2001. "It will decide on how we go from here to the 21st century," he explained.

Another working group was being constituted for developing a business communications network through satellites by establishing low cost earth terminals in 100 towns, essentially for data transmission and exchange of business information, Mr Ravi added. The technical feasibility of setting up such a network and the issue of indigenous manufacture would have to be gone into. The exercise should not take more than three years.

Regarding the manufacture of electronic switching systems, Mr Ravi said no final decision had yet been taken on who ITI should collaborate with for manufacturing ESSs at the Gonda factory. CIT-Alcatel of France, which is ITI's collaborator at its first ESS factory at Mankapur, might also be chosen for the Gonda factory. The factory might even come up with C-DoT technology.

/9317

CSO: 5550/0102

INDIA

# SATELLITE-BASED CORPORATE COMMUNICATIONS SYSTEM LAUNCHED

Madras THE HINDU in English 10 Mar 86 p 9

[Text]

NEW DELHI, March 9.

Itinet—the first satellite-based corporate communication network in the country, set up by the Indian Telephone Industries (ITI), was commissioned at Mankapur (Uttar Pradesh), when Mr. Ram Nivas Mirdha, Minister of Communications spoke from there to Mr. Shivraj Patil, Minister for Science and Technology in Delhi and to Prof. U. R. Rao, Chairman, Indian Space Centre in Bangalore.

In the first phase, the link has been established between the ITI factory at Mankapur in Gonda district and the corporate headquarters in Bangalore. A second circuit has also been established between Mankapur and the ITI office in Delhi. The existing earth station of the Department of Telecommunications at Sikandrabad is being utilised for the Delhi location and the satellite ground terminal equipment developed by the R and D wing of the ITI for the earth station at Mankapur and Bangalore. The cost of the system fully equipped with four two-way channels is Rs. 14 lakhs, according to official sources.

Mr. K. P. P. Namblar, Chairman and Managing Director of ITI, said that though at present only telephone conversation was possible, data terminals would also be made available shortly for transmission of printed material and facsimile. The ITI was gearing up to manufacture and market different types of satellites and earth stations, including the low-cost type for commercial applications, throughout the country, he added.

This is claimed to be the first time in the country that an internal satellite communication has been successfully established for inter-company communication of a commercial enterprise with units spread in remote and rural areas of the country.—

/9274

CSO: 5550/0100

INDIA

BRIEFS

REMOTE SENSING AGENCY--New Delhi, March 13--The ground station of the National Remote Sensing Agency is being upgraded to handle data from the Indian remote sensing satellite proposed to be launched later this year by a Soviet launch vehicle. The department of space is trying to build the infrastructure for generation of geographic data base from remote sensing data and integrate the same with the National Resource Information System (NRIS) data base to form a National Natural Resource Management System (NMRMS). [Text] [Bombay THE TIMES OF INDIA in English 14 Mar 86 p 7] /9317

CALCUTTA MICROWAVE LINKS--Calcutta, March 13--Telephone cables in the city will soon be replaced by microwave links, optical fibres and cement ducting to avoid thefts and damage of cables due to indiscriminate digging by civic agencies, Mr Ram Niwas Mirdha, Union minister of state for communications, said here today. He said six microwave systems were already functioning in the city and 24 more would be installed soon. Cement ducting had been completed on a 53-km stretch at the cost of Rs 15 lakh per km. There are plans to duct 25 km more in the near future. Mr Mirdha said optical fibres, the latest in transmission technology, had also been sanctioned for Calcutta. Four electronic telephone exchanges will be set up, two in the BBD Bag area and two on Chittaranjan Avenue. Expressing concern over the increasing theft and damage of cables in the city, Mr Mirdha said he had written to the chief minister, Mr Jyoti Basu, for setting up an inter-utility committee, comprising representatives of civic agencies, to discuss how damage of cables during digging can be avoided. He, however, said he was yet to receive any response from the chief minister. He said it was a very serious issue and insisted that a formal committee be set up to monitor the work of civic agencies. He said Calcutta has the highest all-India average of cable thefts and called for better policing. [Text] [Calcutta THE TELEGRAPH in English 14 Mar 86 p 1] /9317

INDO-ZIMBABWE TELECOM COOPERATION--Harare, March 11. India today signed a Memorandum of Understanding to provide wideranging telecommunication expertise to Zimbabwe, the country hosting the eighth non-aligned summit six months from

now. The memorandum signed by the visiting Minister of State for External Affairs, Mr. K. R. Narayanan and Zimbabwean Minister of Information and Telecommunications, Mr. Nathan Shamuyarira, covers exchange of information in the field of telecommunications, providing technical expertise, equipment, know-how and financing of nine experts from Zimbabwe to be trained in India. India has also pledged Zimbabwe five luxury buses. A team of 25 technical staff under a senior expert, Mr Sushil Prakash has been in Zimbabwe for the last 18 months. [Text] [Madras THE HINDU in English 12 Mar 86 p 1] /9274

CSO: 5550/0101

IRAN

#### BRIEFS

**SATELLITE TELEVISION STATIONS**--According to a Central News Unit report, a fourth Lorestan satellite station was installed and commissioned in (Emamzadeh Mohammad) village in Kuhdasht district. With a power output of 10 w, the transmitter will broadcast the programs of the first network of the Vision of the Islamic Republic of Iran on channel nine. The inhabitants of [Emamzadeh Mohammad) and 19 other villages in the area, with a total population of 12,290 can now receive first network programs. The new Dorud Second Program Television relay station, with a power output of 10 w, was installed and commissioned by the repairs and maintenance crew of the television and FM transmitters unit of Lorestan. The television relay station will relay the second network programs on channel 12. More than 60,000 inhabitants of Dorud can now receive second network programs with good reception. According to another report, with the installation of a 10 w satellite station, (Mazayjan in Bavanat), in Fars Province, can receive television programs. The installation of this satellite station was carried out by the committed workers of Shiraz Television and FM transmitters unit. The inhabitants of the area can receive first network programs on channel six. [Text] [Tehran Domestic Service in Persian 0730 GMT 13 Mar 86] /9365

**TELEVISION RELAY STATION**--According to the Central News Unit, a receiver cum relay ground station has been set up and commissioned in (Dozin), in Minudasht, Mazandaran Province to make available to the villages in that area channel one television programs of the Islamic Republic of Iran. It has a power of 10 w. [Text] [Tehran Domestic Service in Persian 0430 GMT 5 Mar 86 GF] /9365

**COMMUNICATION SYSTEM CHANGE**--Tehran, March 10, IRNA--The Islamic Republic of Iran's communication system will be changed into a satellite system. The Majlis (Parliament) ratified the bill making the change possible in its Monday session. A communications official at the session said the basis of the country's development should be proportionate to today's world technology. He added that the future of the world is the computer, and electronic information systems. Minister of Post, Telegraph and Telephone Mohammad Gharazi agreed with the suggestion saying that expenditures for carrying out the project amounts to three billion rials (dlrs 375 m) which will be settled within the next 3 years. Gharazi said the low expenditure and an ability to rapidly respond to communication needs of various parts of the country made the changeover feasible. He pointed out that only 3,000 out of 70,000 villages in Iran enjoy communication facilities. [Text] [Tehran IRNA in English 1723 GMT 10 Mar 86] /9365

28 April 1986

TELEVISION RELAY STATIONS COMMISSIONED--The Central News Unit reports that on the occasion of the New Year the new relay station for the second television network of Aligudarz town has been installed and made operational in the village of Askaran. The report says that the 50-W relay will be transmitting the programs of the second network of the Vision of the Islamic Republic of Iran on Channel 9, providing coverage for some 7,000 people in Aligudarz's 19 villages. In addition, the Khalaj television relay station, Khorramabad region, has been installed and made operational. The 10-W relay station will broadcast the programs of the first network for the area's 17 villages on Channel 9. [Summary] [Tehran Domestic Service in Persian 1030 GMT 21 Mar 86 LD] /7358

CSO: 5500/4732

GHANA

ACCRA NOTES PROBLEMS FACING SATELLITE EARTH STATION

AB021722 Accra Domestic Service in English 1300 GMT 2 Apr 86

[Text] Ghana's satellite earth station is becoming a white elephant because Star Technology Limited of Canada has failed to provide three major components for which the company has been fully paid. The components are the international telephone switch, a television transmission chain and an automatic tracking system, all worth more than \$5 million.

Sources close to the P&T [Posts and Telecommunications] corporation say the contract to install the \$14 million satellite earth station at Kuntunso on the Accra-Nsawam road and other accessories was won by NEC [National Electronic Corporation] of Japan. GTE of the United States was second, followed by Star. According to sources, both NEC and GTE offered to undertake the contract on a turn-key basis, which means Ghana should start paying for the cost only as the project had been fully completed. Star, on the other hand, demanded full payment before beginning the project, but the then head of state, late I.K. Acheampong, directed the P&T Board of Directors chaired by Dr Sam Diffu, formerly of Ghana Sanyo, to award the contract to Star. Star's local agent at the time, the source said, was Henry Kojo Djaba, now self-exiled in Britain. The source said the Ghana Government accordingly provided \$9 million and took a loan of \$5 million from the Canadian Export Development Corporation to make up for the difference. The loan is still being repaid.

The international telephone switch, valued at \$4 million will enable Ghanaians to dial any part of the world direct, and also indicate the time, date and duration of a call and bill the subscriber automatically. The switch will also provide 250 channels for incoming and outgoing international calls with the potential for raising further increases instead of the present 52 channels.

The sources said Star brought in the switch but was obsolete and did not conform to the specifications of the satellite earth station. The components are still in their containers on the P&T head office compound. In the present situation, overseas calls go through a cumbersome chain of international switchboard operators and subscribers have to wait for days to make successful calls. This causes subscriber congestion, while the P&T loses potential revenue needed to improve its services.

The sources said the television transmission chain would have enabled Ghana to transmit international sporting activities or anniversary celebrations live to interested countries or subscribers abroad for a fee in foreign currency. But the transmission chain provided by Star developed a fault when the satellite station was being commissioned in August 1981, and has since not been fixed, despite the 1 year guarantee offered by Star in the contract.

The automatic tracking system is responsible at the press of a button, for readjusting the earth station dish to focus onto the space satellite which is 36,000 km up in the sky, when the dish goes off course. Without the tracking system, the technicians at the station have to focus the dish manually, by climbing up its mast and often at the peril of their lives.

Star, the sources asserted, does not specialize in telecommunications, so it sublets its contracts to other contractors, such as Cable & Wireless of Britain, (Toronto Iron Works) of Canada to procure or manufacture the various components.

/9604

CSO: 5500/61



EUROPEAN AFFAIRS

TELE-X PROJECT AND NORDIC COOPERATION IN THE SATELLITE FIELD

Oslo TELEKTRONIKK in Norwegian No 3/4, 1985 pp 213-219

[Address delivered at the Norwegian Telecommunications Users Association's seminar in Oslo on 15 January 1985, by John R. Veastad]

[Text] 1. Nordic Cooperation in the Telecommunications Satellite Field

The Nordic telecommunications agencies had already begun a cooperative venture when the first experimental telecommunications satellites, Telstar and Relay, went into orbit in 1962. The objective was to attempt to form common attitudes toward an international cooperative effort in telecommunications, together with a desire to prepare for the new technology. Swedish Telecommunications Agency General Director Håkan Sterky took the initiative and this quickly led to results. The telecommunications agencies formed a cooperation committee, the Scandinavian Telecommunications Satellite Committee, STSK, in 1961. It was later expanded into the NTSK, the Nordic Telecommunications Satellite Committee, when Finland joined the joint venture.

Råö [Rå Island]

In order to gain practical experience with the new technology, STSK established a cooperative effort with Chalmers Technical College, where Professor Rydbeck was the driving force, to obtain a receiving station with a 29-m-diameter antenna. This was set up on Råö in 1964 and partook in a number of international transmission experiments.

Tanum

After an intense international joint effort led by the USA, an international agreement was signed in 1964 regarding the formation of INTELSAT (International Telecommunications Satellite Organization). From a cautious beginning with "Early Bird" the organization now 20 years later has 16 satellites in orbit with the capacity to transmit about 150,000 telecommunications. Six hundred and fifty earth stations are affiliated with the INTELSAT operation.

It was natural for the Nordic telecommunications agencies to build a joint earth station for telecommunications traffic over the Atlantic Ocean. The earth station at Tanumshede, Sweden, was initiated in 1971. Today the station

has two antennas with diameters of 29.5 and 32 meters, respectively. A total of about 900 telecommunications are transmitted between the Nordic countries and countries in the western hemisphere. Additional traffic capacity is being made available for the western and also the eastern hemisphere in cooperation with the Netherlands and Great Britain.

#### Eik

Norway of course had major interests in the INMARSAT (International Maritime Satellite Organization) international organization, which is to relay communications between ship and shore and between ships via satellites. In 1980/81 the Norwegian Telecommunications Agency built a new earth station associated with the installation at Eik.

In accordance with an agreement entered into between the Nordic telecommunications administrations (Denmark, Finland, Norway and Sweden) in the fall of 1976, these countries conduct their maritime satellite traffic for the Indian Ocean through the Eik station. Operating costs, including interest and depreciation, are divided in proportion to traffic. In addition, the Nordic countries have cooperation agreements with Singapore and Great Britain for conducting traffic via the INMARSAT system's transponders over the Atlantic and Pacific oceans.

#### Ågestad

The Nordic telecommunications administrations also have a cooperation arrangement regarding the earth station at Ågestad near Stockholm in affiliation with the European Telecommunications Satellite Organization, EUTELSAT.

In addition to the transmission of telephone calls and data transmission traffic, the station is also to transmit programs which are broadcast under EBU's production for distribution over links, to Oslo, among other places.

## 2. Industrial and Research-Related Activities

An industrial policy report was prepared by the Nordic countries' industry ministries in connection with the latest report on NORDSAT (which was presented in 1980). The conclusion was that NORDSAT should provide a basis for the development of Nordic industry and that the conditions ought to be put into order for this development.

On Sweden's part the initiative was taken to develop a satellite which could form the basis for a later NORDSAT cooperative effort. The Swedish plan was given the name TELE-X. It is to the effect of launching an experimental telecommunications and broadcasting satellite which can later be put into experimental operation (preoperational service). The main objective is to develop direct TV broadcasts and data communications with small earth stations (business communications).

On Sweden's part it was believed that it was possible to implement TELE-X within a budget of 1.25 billion SEK [equivalent Swedish kroner] (January '82).

In a letter dated 14 September 1982 from the Swedish industry minister, Norway was invited to take part in the main project with 325 million SEK (26 percent). After negotiations between the two countries Norway's share was set at 187.5 million SEK (15 percent). The agreement papers were signed on 11 April 1983 on Norway's part by Industry Minister Jens Halvard Bratz and General Director Kjell Holler.

### 3. Government Agreement of 1983

The agreement was the result of time-consuming and complicated negotiations. It forms the basis for a longterm cooperation arrangement between Norway and Sweden in the telecommunications satellite field. The TELE-X project is the first project within this cooperation arrangement. The agreements provide an opportunity for other Nordic countries to join.

The agreement provides the fundamental political basis for a future cooperative effort between Norway and Sweden in the telecommunications satellite field. The aim is to build up jointly competence, know-how and industrial competitiveness in the field, as well as to derive advantages from the practical accommodations which satellite technology makes possible.

The structure of the agreement is shown in fig 1 [not reproduced].

The following agreements, protocol and appendixes are included:

Agreement between the government of Norway and the government of Sweden regarding cooperation in the telecommunications satellite field with appendixes.

By-laws of the Nordic Telecommunications Satellite Consortium.

Stockholders agreement for a purchasing company under Swedish law.

Stockholders agreement for an operating company, NOTELSAT, under Swedish law.

A guarantee agreement between the government of Norway and government of Sweden regarding fulfillment of obligations for going through with TELE-X.

Protocol concerning the understanding of certain items in the agreement between the two governments.

Project agreement concerning TELE-X with the following appendixes:

Technical description of TELE-X.

Industrial policy preconditions for TELE-X.

Financing and payment plan for TELE-X.

The organized cooperative effort is, accordingly, to take place in the future within the framework of a consortium: the Nordic Telecommunications Satellite Consortium, with the following organs:

The assembly, which consists of six representatives from each country. It is to constitute an advisory organ with the duty of issuing statements regarding the management's plans concerning the accomplishment of joint projects and, thereby, communications policy, industrial policy, media policy and other factors.

The consortium board of directors is to consist of two representatives from Norway and four representatives from Sweden together with their personal deputies. It has extensive duties like, among other things, taking the measures which are required for the purpose of the cooperative effort's being achieved. The board of directors is to develop proposals for new projects over and beyond the TELE-X project with a view toward submission to the countries' governments. The board of directors can also draw up top-level directives for the activities of the consortium and the stock companies.

The purchasing company (Nordiska Satellitaktiebolaget [Nordic Satellite Corporation]) is led by a board of directors which is identical with the consortium's board of directors. Shares in the company are owned 15 percent by Norway and 85 percent by Sweden.

The company is, within a set time frame and cost budget, to buy up the TELE-X satellite and put it into operation in orbit; buy up the earth segment; and also enter into an agreement with the Swedish Rymdbolaget [Space Corporation] regarding putting TELE-X into operation in orbit and regarding project leadership and control of the satellite in orbit (TT&C). After this, Rymdbolaget will itself lead the TELE-X project and be in charge of the purchase of TELE-X and other "project-specific" equipment.

The operating company (Nordiska Telesatellitaktiebolaget [Nordic Telecommunications Satellite Corporation] = NOTELSAT) is to be the executive organ in the future cooperative effort regarding operational telecommunications satellite projects. The company is registered as a Swedish corporation and is owned by the two countries' telecommunications administrations with equally large shares. The company, which has its headquarters in Stockholm, is led by a board of directors consisting of four members and two deputies (three from each telecommunications administration).

#### 4. NOTELSAT

Since the NOTELSAT operating company is the most interesting in this context, we will go in greater detail into its agreement basis, objective and functions.

##### Objective

It reads in the by-laws that "the company will have as the objective of its activities the development, buying up, selling and responsibility for the operation of telecommunications satellite systems, as well as the performance of other activities consistent with this."

## Basis

NOTELSAT's activities are to be primarily based on the existing agreement, i.e.:

- The government agreement of 11 April 1983.
- The stockholders agreement.
- The company by-laws.
- The cooperation agreement with Rymdbolaget.

The most important thing about NOTELSAT is that it is to be /the executive organ for future cooperation in operational telecommunications satellite projects/ [in italics]. Especially on Norway's part, the misunderstanding seems to have spread that NOTELSAT is entirely bound to TELE-X and the Swedish Rymdbolaget. In this connection one can point to the fact that the TELE-X project "is included as a first project" in the Norwegian-Swedish cooperative effort, and those terms which are the result of a separate project agreement apply to this project. In other words, new satellite projects--such as a supplement to TELE-X in order to obtain an operational telecommunications satellite system--must presuppose total Norwegian-Swedish (or possibly Nordic) agreement, as well as a new project agreement. Without such follow-up agreements the government agreement itself can perhaps be said to have reduced value.

The tie between NOTELSAT and Rymdbolaget is given in a subappendix to the government agreement in the form of a "cooperation agreement between the telecommunications administrations' operating company (NOTELSAT) and the Swedish Space Corporation (Rymdbolaget) concerning future telecommunications satellite projects." In this it reads:

1. NOTELSAT is to buy up, own and be responsible for the operational management of telecommunications satellite systems as covered by the above-cited government agreement regarding cooperation in the telecommunications satellite field.
2. NOTELSAT shall to the extent that it is to the advantage of both parties for future cooperation projects in the telecommunications satellite field in the North assign the Space Corporation the task of being responsible for buying up and project leadership of the space segment, as well as the control of satellites in orbit, in accordance with separate agreements for each project.
3. NOTELSAT shall, in entrusting duties in accordance with paragraph 2 above, have the right to direct the Space Corporation regarding the utilization of Norwegian competence in the field of space.

These three points can be considered very central both for NOTELSAT and for a balanced Norwegian/Swedish cooperative effort as regards the establishment and management of future telecommunications satellite systems and as regards industrial activities in this field in the two countries.

NOTELSAT is therefore now in a buildup phase in order to acquire competence and strength to achieve technically justifiable growth and to carry out an independent assessment of the future telecommunications satellite system before it ties itself to new projects.

#### Functions

NOTELSAT has hitherto been occupied with specification of the communications system, which consists of both satellites and earth stations. In the very near future NOTELSAT is to "be responsible for the design and implementation of telecommunications engineering experiments" on TELE-X. In addition, the company is to "be responsible for operation of the earth segment, including monitoring of traffic during the TELE-X program's experimental phase." If TELE-X after the experimental phase proceeds to preoperational or operational functioning, NOTELSAT--after negotiations with the purchasing company regarding terms--is to take over the TELE-X satellite with the earth segment which goes with it at the market value applying, calculated according to their traffic value for NOTELSAT. The purchasing company is to be liquidated when NOTELSAT has taken over the ownership rights to the satellite and the earth segment--"but at the end of 1988 at the latest."

#### Future Cooperation

The future and more longterm duties of NOTELSAT are stated in the agreement as being "to be the executive organ in the future cooperation arrangement regarding operational telecommunications satellite projects." In addition, NOTELSAT is to "have a view toward, on commercial terms, placing telecommunications satellites and necessary satellite control at the disposal of these, as well as earth stations jointly owned by the telecommunications administrations for sending and receiving via these satellites." It says also that NOTELSAT in this connection is to "specify satellite systems and be responsible for buying up, as well as to have the ownership rights to, operational telecommunications satellites and those earth stations for telecommunications traffic which are jointly acquired by the telecommunications administrations."

On the whole, it can be said that the agreement entrusts NOTELSAT with essential and important functions for the development of the country's future telecommunications. It is accordingly up to the owners--the two telecommunications administrations--to utilize the opportunity to shape NOTELSAT into an effective shared resource.

#### 5. The TELE-X Project

Seen from a telecommunications engineer's viewpoint, an investment of 1.25 billion (1982) kroner, buying abroad, would probably be able to yield an operational satellite system with two modern satellites and control stations for them for data and video transmission as well as broadcasting of TV and audio programs. Based on the participation in the existing satellite project, the competence in these two countries' telecommunications agencies is also relatively high. Therefore, the TELE-X project can certainly be regarded essentially as an industrial project.

In the sheerly telecommunications engineering domain, a large portion of the experimental results and building up of competence should have been able to occur in participation in other existing projects or similar projects which have preceded TELE-X.

If the Norwegian Telecommunications Agency's and NRK's [Norwegian Broadcasting System's] participation in the TELE-X project does not cost more than approximately the 10 million kroner which the Storting presupposed per institution over three years, then the project can all the same be interesting in the telecommunications engineering respect.

#### The Satellite Itself

The satellite weighs 2100 kg before launching. The distance between the extreme points of the fold-out solar cell panels is 19 meters. These panels can generate 3200 W of input. See fig 2 [photograph not reproduced].

The satellite stage consists mainly of the following:

- A mechanical supporting structure, and
- a power supply unit,
- a thermal control system,
- a remote control unit,
- an attitude and orbit control system.

The communications section constitutes the pay load itself. It consists of the following:

- Antennas,
- three transponders for data/video transmission, and
- three transponders for TV and audio broadcasting.

The three TV transponders can be used simultaneously, but then the capacity is limited to one data/video transponder. With just two TV transponders in operation, two data/video transponders can be used.

The main contractor for the satellite is the French Aerospatiale company on behalf of the European Satellite Consortium. SAAB-Scandia AB [Inc.] has the responsibility of co-contractor. L.M. Ericsson is the main contractor for the satellite's pay load in a joint venture with Thompson-CSF. Norwegian sub-contractors are Kongsberg Våpenfabrikk A/S [Weapons Plant, Inc.], Raufoss Ammunisjonsfabrikker A/S [Ammunition Manufacturers, Inc.], Ticon Plast A/S [Plastics, Inc.] and Aksjeselskapet Mikroelektronikk [Microelectronics Corporation] (AME).

#### The Earth Segment

The project includes the following earth stations:

- A control station in Kiruna is to perform telemetering and issue necessary commands to the satellite so that it will operate normally from its position in orbit.

A traffic control station in Nittedal is to control the assignment of satellite capacity for data/video transmissions.

An uplink station in Nittedal for sending up to three TV programs with sound up to the satellite.

A few other stations distributed over the two countries for carrying out measurements and various telecommunications engineering experiments.

L.M. Ericsson and Elektrisk Bureau A/S are acting in an agreed joint venture as main contractors for the earth segment. This joint venture also applies to technological development and marketing in the North and other countries.

The operations control center for the satellite system as a whole (OCC) is to be at NOTELSAT's headquarters in Stockholm.

### The Experiments

Today greatest interest involves the experiments on television and audio program broadcasting. The TV transponders' output will be a whole 230 W, which will provide very good picture quality for direct TV reception with under 1-meter-diameter antennas, in the whole North. They want to study the effect of rain, snow and ice on earth station antennas. In addition, they are interested in correct data on how large the shadow regions will be in valleys and fjords.

An interesting part of the experiments concerns satellite broadcasting by a new TV system which has the designation "C/MAC-Packet." The system was first put into service in satellite transmission of TV programs to Svalbard (begun on 22 December 1984), but it is now to be used in direct broadcasting from a satellite to a new type of home receiver.

In addition, it is possible to imagine experiments in broadcasting high-definition TV (HDTV) and home facsimile transmission, as well as experiments with other new telecommunications engineering equipment.

Experiments will also be conducted with stationary and portable digital equipment for telephone and data communication between businesses and for video conferencing, as well as the transmission of pictures from special occasions, like sports events, etc.

## 6. New Possibilities in The Telecommunications Satellite Field

### The Satellites' Merits

As one understands them, TELE-X and future operational telecommunications satellite systems will provide a number of new opportunities. Because of the distinctive nature of satellites, they are especially suited for communications over great distances, for example, for traffic between continents and where it is otherwise difficult to establish communications. We have examples of the latter in communications with and TV transmission to the oil industry in the



North Sea, where there will soon be eight earth stations. It is the same with communications with Svalbard. Technically, it will also be possible to establish telecommunications and TV broadcasting via satellite to Bjørnøya [Bear Island], Jan-Mayen and Hopen, but the costs will be relatively high. A less expensive partial solution for TV consists in direct broadcasting by satellite so it will be able to be received through the TELE-X and other DBS satellites with higher transmission power. Telephone and data communications with such smaller places can theoretically be obtained more reasonably via the INMARSAT system. But, legally speaking, this satellite system is only for communications to and from ships or between ships. The limited capacity the system has today is therefore essentially reserved for these purposes. In this connection, it is possible to point to INTELSAT's new VISTA service, which aims at bringing national and international services to remote areas.

One other merit of satellites is broadcasting to or receiving from a great number of stations within a defined service area. An example of transmission of this sort is direct broadcasting from a satellite. With a relatively high transmitter power of 100 to 200 W it is possible to use small and inexpensive receiving equipment (1-meter-diameter antennas and a receiver noise factor of about 4 dB).

Theoretically, there is also a big future in the use of satellites in a mobile telephone system. But a practical and costwise acceptable system will not be available before a united group of large antennas can be established in space (high antenna gain = smaller and less expensive mobile sets), as well as before a signaling and switching system can be established which can handle a very large number of mobile units in a larger number of service areas.

#### What TELE-X Will Bring

Besides direct TV broadcasting--which is discussed above--it is also expected that TELE-X will be able to contribute to the following switched data services:

- Business internal communications.
- Electronic mail.
- High-speed facsimile transmission.
- Communication between computers.
- Updating of data bases.
- Data base search.
- Distribution of natural resources photographs and meteorological photographs.
- Remote printing of newspapers.

In the area of video services the following are foreseen:

- Video conferencing.
- Video telephone.
- Tele-instruction.
- Telemedicine.
- Transmissions from major occasions.
- Video distribution (hotel TV, etc.).

For programming companies there will also be opportunities for the collection of program material from stationary and mobile outside stations.

#### 7. The Future in the North

To what extent NOTELSAT will come to solve future problems for telecommunications users in the North depends strongly on the political decisions which can be made; among other things, as a result of the NORDSAT report. The question of a joint Nordic effort for the distribution of television is of very great importance.

All the same it must not be overlooked that NOTELSAT in any case was founded on a relatively detailed government agreement worked out between Norway and Sweden. Here the two telecommunications agencies have a flexible tool to solve most common telecommunications satellite problems with. The possibilities exist for expansion to include the other Nordic countries.

However, it has proven difficult to get Norwegian personnel to move to Stockholm to work at NOTELSAT. Such a feeble Norwegian commitment to the operation can result in dissolution of the company, especially if TELE-X should fail in the launching phase.

If the two telecommunications agencies want to utilize the big opportunities they now have in NOTELSAT for having their common objectives realized in the telecommunications satellite field, then they ought to provide an organization and practical plan which ensures a commitment from both sides. A possible solution is to establish branch headquarters in Oslo.

8831

CSO: 5500/2635

EUROPEAN AFFAIRS

NORDIC COUNTRIES SET UP WORLD'S FIRST INTERNATIONAL TEXT TV NET

Helsinki HUFVUDSTADSBLADET in Swedish 1 Feb 86 p 9

[Article: "Nordic Text TV Cooperation"]

[Text] As the first countries in the world, Sweden, Finland, and Denmark will begin an exchange of domestic news on Wednesday 12 February. Each country will present the "best" news from the other countries in the original language. Sweden will have a central text-TV computer that will receive the news by way of the telecommunications network.

At 1730 on Monday through Friday, anyone with a text-TV set will be able to see the best news from the various countries in the original language.

The pages of news will be transmitted until 1730 the next day. The number of news pages and the number of exchanges each day will probably increase in the relatively near future.

Norway will not join the network until next fall. The Norwegians have a different type of computer and must first obtain an interface for the different computer systems. So far, Iceland has no text-TV.

Editor in chief Leena Maija Tuominen of the Finnish Broadcasting Company said on Friday that Finland would begin by sending five Swedish and five Danish local news items at 1800. If the news is of particular interest it will also be translated into Finnish.

There are now 135,000 text-TV sets in Finland.

There are presently about 0.5 million text-TV sets in Sweden. If it is assumed that 2.5 people have access to each set, then about 1.2 million people can watch text-TV in Sweden.

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CSO: 5500/2623

FINLAND

TELENOKIA, SIEMENS TO PROVIDE DIGITAL PHONE SYSTEM FOR HELSINKI

Helsinki HUFVUDSTADSBLADET in Swedish 1 Feb 86 p 7

[Article: "Telephone Net Digitalized"]

[Text] The Helsinki Telephone Company will modernize its old telephone exchanges more rapidly than initially planned. The new, faster timetable will mean that the region served by the company will have 190,000 digitalized telephones by the end of the year 1990. This amounts to about one third of the telephones in this network.

The investment program will cost about 200 million markkas. The telephone company will purchase half of the exchange equipment from Telenokia and half from Siemens.

The new technology means that customers will enjoy better sound quality, bills will be more detailed, and connections will be made more rapidly.

At present, about 600,000 telephones are included in the operating area of the Helsinki Telephone Company.

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FRANCE

## NEW PTT STRATEGY EMERGING AFTER REORGANIZATION

Paris ZERO UN INFORMATIQUE HEBDO in French 3 Feb 86 p 72

[Article by Philippe Moins: "Jean-Claude Hirel Is Appointed Mister Strategy"; first paragraph is ZERO UN INFORMATIQUE HEBDO introduction]

[Text] With the recent reorganization of the PTT [Post, Telephone & Telegraph], Jean-Claude Hirel regains the management of the data processing industry which he lost while director of DIELI [Management of the Electronics and Data Processing Industry]. Moreover, he will be "Mister Strategy" for all PTT activities.

For several weeks already, the PTT ministry has been distilling a perfume of reorganization. In December Louis Mexandeau spoke about the objectives of this change without revealing its specific contents: "It involves the improvement of the PTT's public services in order to respond to worldwide economic modifications created by American deregulation."

The general outline was to appear bit by bit with a distinction between industrial policy and the use of the telephone network serving as the keystone of the future structure. In short, business logic has been introduced into the almighty house of the PTT. Jean-Claude Hirel had already been hinted at as the possible key person in the situation who might be put in charge of a new general directorate for strategy.

Last week such hypotheses were confirmed with the publishing of a decree in the JOURNAL OFFICIEL regarding "the organization of the central PTT administration."

What kind of change will this PTT reorganization bring? Despite the wind of deregulation blowing over the American and Japanese telecommunications industry, it will certainly not lead to the destruction of the PTT monopoly, as is desired by many people.

As a pillar of reorganization, the completely new General Strategy Delegation --inspired and directed by Jean-Claude Hirel--was given a very full agenda. It will study and propose to the PTT minister strategic objectives for the ministry including international policy, and it will monitor their implementation. According to the JOURNAL OFFICIEL, "In this capacity, it will participate in elaboration and monitoring of the management charters of general directorates, subsidiaries, and institutions associated with them and the TDF [French Telecasting]."

Second, it will formulate and enforce general PTT regulatory principles and will suggest their adjustment, especially in response to the international situation.

Third, it will coordinate the PTT participation in national and international institutions, especially those responsible for regulation and technical standards.

Fourth, and this is a fundamental point, "it supervises industries in the telecommunications, data processing, and office automation sector." In this capacity, it will distribute capital contributions and subsidies within the budget determined by the financing law, and it will develop project contracts for companies in this sector, in collaboration with the General Directorate for Industry.

Thus, Jean-Claude Hirel has gone back to his origins by regaining the management of the data processing industry which he lost to the DGT [General Management of Telecommunications] in July 1983, when he took over the DIELI management. During the summer of 1983, Laurent Fabius and Louis Mexandeau, indeed, agreed to transfer management of the electronics sector from DIELI to the DGT. Within the DGT, the Directorate of Industrial and International Affairs (DAII) took charge of the data processing industry under the name of PIBI, "Industrial, Office Automation, and Data Processing Project."

Clean the slate...and return to square one? Not exactly, since the General Strategy Delegation will have to collaborate with various PTT directorates and also, for long-range program contracts, with the Ministry of Foreign Trade and Industrial Redeployment. Above all, the delegation will establish the basic direction of telecommunications policy.

For example, sooner or later it will have to make a decision on how to deal with those promoting value-added networks and on their share in the information transfer sector.

Finally, a second directorate is created by the PTT reorganization: the (Directorate of Common Affairs) which has "authority in the fields of personnel, company affairs, budget, accounting, and in motor vehicle maintenance." It unites the former directorate of personnel and company affairs and that of budget and accounting. "The objective of the reorganization is to manage personnel more flexibly, especially with regard to recruitment."

These two directorates, the Strategy Delegation (about 50 persons), on the one hand, and the (Directorate of Common Affairs), on the other, round out the PTT ministry's organizational scheme, alongside the DGT and the General Directorate of Post Offices.

[Box]

From TITN to PTT

Jean-Claude Hirel, founder of the TITN [New Techniques for Information Processing] Company, currently affiliated with the CGE [General Electric Company], is 49 years old. From December 1981 until August 1984, he was director of DIELI before being appointed principal private secretary for Louis Mexandeau a year and a half ago. Last Wednesday, the Council of Ministers appointed him to the post of General Delegate for Strategy in the PTT.

ITALY

# TELECOMMUNICATIONS FIRMS INFORM PARLIAMENT OF PROSPECTS

Turin MEDIA DUEMILA in Italian No 1, Jan 86 pp 116-120

[Article: "34 Trillion Lire by 1990"]

[Text] Last year, according to figures supplied to the Parliamentary Transport Committee by IBM, the market for products for data processing and transmission, that is, products ranging from computers to telephone exchanges, reached 12,000 billion lire, representing approximately 1.9 percent of the GNP.

It can be estimated that of these 12 trillion lire, about one-fourth represented telecommunications equipment, from modems to telephone exchanges.

According to forecasts, this sum is destined to almost triple over the next 5 years, to reach 34 trillion lire. Overall growth in the sector is expected to be 18.9 percent per year. Growth will vary from one area to another. Whereas information systems hardware will grow at an average compound rate of almost 18 percent, software and data processing services will increase by about 23 percent, and telecommunications by 10.6 percent.

These figures are supported by the statistics submitted to the committee by the Ministry for Industry. On the basis of 1983 prices, this Ministry estimates a turnover in the Italian telecommunications and telematics sector of 30 trillion lire. "If we take the R&D costs as being equal to 10 percent of turnover," says Giovanni Scanagatta of the Ministry for Industry, "this gives us a figure of 3,000 billion lire in 1983 terms. If the state subsidizes 50 percent of the costs, then this represents a commitment of 1.5 trillion. These are the figures, and this is the scenario we are expecting to see. Despite all this, the Italian companies are not happy, and have put forward a series of complaints, worries and requirements to the members of the Transport Committee."

"Italian companies involved in the telematics sector need concrete programs with guaranteed financing which allow them to present competitive products which satisfy the new requirements of the customer on both the domestic and international markets." This is essentially the position that representatives of individual Italian companies and industrial organizations belonging to the sector set before the members of the Transport Committee, who have chosen a number of speakers for this part of the survey, while excluding bodies such

as ANFoV (National Association of Suppliers of Video-information) who represent interests and demands which seem to have no future and no niche in the market if we look at the final picture.

The first person to speak was Mr Sergio Mercuri, head of the "Professional Electronics" group of ANIE (National Association of Electrical and Electronics Companies). One of the things requested by Mr Mercuri was that there should be an effective and well coordinated support policy for exports which would make it possible for this sector to be present on overseas markets on an equal footing with its international competitors.

The proposals put forward by companies producing information systems services for promoting development in this sector were illustrated for the Committee by a delegation from Anasin (National Association for Companies Producing Informatics Services). One of the things that the Anasin representatives would like to see is "the activity of public operating companies be oriented toward upgrading basic telecommunications services, rather than creating unnecessary competition for companies specializing in telematics services." In conclusion, Anasin proposes that "a radical review of the standards relating to telecommunications be implemented with utmost urgency in order to bring these standards into line with the evolution and potential of the techniques and requirements of business users."

The Olivetti delegation (Paolo Mancinelli, general secretary; Bruno Lamborghini, director for economic studies; Elserino Piol, general manager of the Secretariat and Development; Giovanni Cherubini, manager of the Rome office) expressed to the members of the committee their concerns regarding the unbalanced relationship existing in Italy between SIP [Italian Telephone Company] and manufacturers. What happens in practice is that the manufacturers are limited to supplying "parts" only, and always with the restrictions imposed by SIP. This is an anomalous situation which does not protect Italian manufacturers, contrary to the situation in other countries. The Olivetti representatives felt that this is a situation in which the conditions necessary for competitiveness are lacking and, as a result, the premises for the promotion and development of the market are also lacking. The situation is further aggravated by the monopoly of the Ministry of Posts and Telecommunications--SIP in the telecommunications sector, as this does not allow manufacturers to practice either scale works and services to third parties.

Olivetti feels, therefore, that there is an urgent need to liberalize the market. In any case, it is essential that standards and regulations guaranteeing the compatibility of public and private networks and services be respected. In effect, the regulations currently in force and which are defined as "punitive" should be overturned. Greater investments in telecommunications networks and infrastructures; a new strategic role for public administration and a more effective industrial policy; the formulation of European standards and product type approval--these represent some of the essential factors for the development of telematics pointed out by Domenico Faro and Marisa Bellisario, president and CEO of Italtel (Iri-Stet group).



According to Marisa Bellisario, in order to accelerate development in this sector there should be an increase in the investments already established under the terms of the 10-year plan for telecommunications. In parallel with this, state-of-the-art telecommunications networks must be installed throughout Italy. Only by doing this will the new telematics services become widespread and capable of providing an effective response to market requirements.

In this scenario, according to Ms Bellisario, a role of primary importance can be played by public administration which, working through a coordination organization, should promote projects for the introduction of telematics for social services (e.g. in the sectors of transport, ecology, education, health), systematically coordinating far-reaching and global solutions, avoiding the possibility of duplication and incompatibility of the various projects implemented by the different administrations.

Marisa Bellisario emphasized: "What we would like to see is a situation in which these administrations, in their choice of products and technology, give priority, where performance is equal, to Italian companies which are in a position to offer solutions that are more in keeping with the social and economic situation in our country. Moreover, choices of this kind would also make it possible to develop R&D activity in Italy, which is essential if we are to become more competitive on the international scene."

#### Coordination of Public Administration

An indirect answer to the comments made by Ms Bellisario was given by Mr Remo Gaspari, minister for public services. Mr Gaspari mentioned that the "structural rigidity" of public administration "has conditioned and fragmented the process of modernization, causing imbalances between the various branches of the administration without producing an overall improvement in the services commensurate with the financial commitment assumed." He went on to say that because of this, it has been necessary to implement a process of global coordination, which has been entrusted to the "Coordinating Committee for Data-Processing."

The activity of the committee is directed toward coordinating programs and training personnel. A general survey has been implemented of the information systems used by public administrations, as well as of ongoing projects, financial resources committed and the personnel working in the systems. The minister for public services added that the committee is implementing, by means of special seminars, "the first phase of a program for information systems literacy" for director generals of government bodies. Nonetheless, he observed, the coordination of programs and the training of personnel will be of little value unless action is taken to modify those procedures which, even if interpreted in the broadest sense, do not permit us to use data-processing as an integral part of the process rather than as a support tool. Mr Gaspari hopes that we do not have to "arrive in the year 2000 with problems of whether or not it is appropriate to use documents prepared on printers connected to data-processing systems." He also pointed out that today it is still not possible to issue certificates using terminals. Similarly, thousands of decrees, although prepared electronically, are still signed individually.

In order to overcome this problem, provisions are being examined "for the classification of administrations and their documentation, as well as for the coordination of the regulations governing the use of technology in the preparation of administrative documents."

#### Type-Approval of Telematics Products

Anyone who has only just stepped inside the world of telematics by introducing into his company "intelligent" exchanges, "fax systems" terminals and the like, has often had to come to terms with the chaotic situation in the sector of the homologation of telematics products if it is true that at times all that is needed is for the power to go off for the entire system to be put out of action, while the innocent user stands back to watch the ball game between the operating company (SIP) and the supplier of the telephone exchange or telecopier regarding their respective responsibilities.

There can be no doubt, therefore, that one of the obstacles blocking harmonious development of telematics is represented by the fact that type-approval criteria differ. This is an aspect which has been clearly stated by representatives of manufacturing companies.

According to Mr Presutti, chief executive officer of IBM Italy, the greater the differences from one country to another regarding technical requirements and type-approval procedures, the larger the investments needed to adapt individual products to the various standards, thus creating extra costs which inevitably come to be borne by the user.

In Europe, according to Marisa Bellisario, the CEO of Italtel, the best development strategy is to progressively standardize the telematics standards currently in force and to adopt unified regulations for type-approval of products as an effective means of industrial policy. Therefore, there is a broad consensus of opinion among manufacturing companies concerning the initiatives and recommendations of the European Committee regarding the standardization of procedures and the simplification of type-approval processes at a European level.

This has led to a widespread desire for the methods of certification and control accepted in one country to be formally recognized in all countries, as this represents the greatest contribution in real terms to making products more competitive. An alignment of type-approval procedures and requirements, say the companies, certainly encourages the adoption of international standards. However, IBM strongly maintained that the main function of the standards is to respond to the requirements of the final user. They must therefore be easy to understand and adopt. It must not be difficult to apply them and, finally, they must not represent an obstacle in the path of technological progress and the evolution of products and applications.

The Italian authorities responsible for this sector do not deny certain accusations leveled by industry. As Prof Diodato Gagliardi, director of the Higher Institute of Posts and Telecommunications admitted to the committee: "What has in fact happened in Italy is that we have adopted a fairly liberal

policy toward type-approval, in the sense that much of the equipment coming from other countries is type-approved. However, this is something which is closely linked to the structural deficiencies in the sector manufacturing equipment of this kind in Italy, as these create gaps in the market for terminals which are filled by non-Italian products."

However, in order to avoid problems, what happens is that these telematics products are submitted for type-approval not by the foreign company, but by its Italian affiliate, which simply appropriates the foreign product and reproduces it in Italy. This has been happening for years now, Gagliardi admits, with hundreds of Canadian, French and German telephone exchanges. "This also applies to fax systems," reveals Gagliardi, "which all come from abroad, as there is not a single company in Italy which produces this kind of equipment. However, I feel that type-approval procedures in Italy are fairly strict. I also believe that the situation will gradually improve as Italian companies get to a stage where they can manufacture products of this kind."

The Plan for the Telecommunications Industry which was laid down in April of this year by the minister for industry, Renato Altissimo, shows two possible scenarios for the development of demand for telematics products, for the period 1985-1989, and for the entire decade 1985-1994 (in trillions of lire at 1983 prices).

<u>5-Year Period 1985-1989</u>	<u>"Natural" Scenario</u>	<u>Scenario "With Incentives"</u>	<u>% Difference Between The Two Scenarios</u>
Demand for private networks	1.12 trillion	1.51 trillion	+ 35%
Demand for terminals	3.1 "	5.2 "	+ 67%
Demand for computers and software for telematics applications	<u>3.1 "</u> 7.32 trillion	<u>5.27 "</u> 11.98 trillion	<u>+ 70%</u> + 64%
<u>10-Year Period 1985-1994</u>			
Demand for private networks	2.320 trillion	3.26 trillion	+ 40%
Demand for terminals	6.6 "	13.2 "	+100%
Demand for computers and software for telematics applications	<u>7.2 "</u> 16.120 trillion	<u>12.72 "</u> 29.18 trillion	<u>+ 77%</u> + 81%

The "natural" scenario shows an inertial projection of the current trend, whereas the scenario "with incentives" presupposes larger investments in network infrastructures, the promotion of applications of services, the creation of incentives for business users and programs for the introduction of data-processing systems in the public administration.

ITALY

TV EXECUTIVE OPENS FRENCH STATION, EYES DBS MARKET

Milan STRATEGIA in Italian No 4, 1-15 Mar 86 pp 19-21

[Article by Jacques Levy: "La Cinq: An All-Italian Television"]

[Excerpts] On 20 February La Cinq started broadcasting. Almost unanimously, the French press expressed its indignation: "This is an Italian television."

It is difficult for the French to admit their lack of professionalism and means to launch a commercial television within record time. Not to mention that if Galliani [not further identified] had not used all his ability in the high frequency field, TDF (Telediffusion France), the public body which owns the relays, never would have been able to allow "La Cinq" to broadcast. It may sound unusual to the Italian public, which is used to receiving dozens of channels, but it looked like there were no frequencies available in France. In fact, they had to use the Telecom 1 satellite to send back the signal broadcast from Paris to 16 large parabolic antennas; from there it is then forwarded to the relays. Indeed, only the stubborn will the Channel 5 master could succeed in this venture.

Now the most unpredictable obstacle is emerging: elections in March. Should the Right win, as appears possible, the newborn Cinq will see hard times.

Chirac, the Gaullist mayor of Paris, who last November was robbed of "his" Eiffel Tower by an amendment quickly approved by the Socialist majority in parliament, swore to get even. Not only will he make every effort to hand over the two public networks, or at least one, to private parties, in particular to his publisher friend, Hersant, but he will also try every possible way to withdraw the concession to Seydoux-Berlusconi television. "Mr Cinq" [Silvio Berlusconi, a leading Italian businessman and television station owner] declared: "It would be the largest bargain in my life." "La Cinq" could make more than 200 billion lire in the event of a unilateral cancellation of the concession contract. And he is right. In fact, more objective observers foresee an "agreement" between the two rivals, particularly if Chirac does not win by a landslide, as is possible.

Another appointment will be waiting for "La Cinq" immediately after summer when the first European direct broadcasting satellite--the French TDFL--should begin operation. Of the four available channels, one has already been granted to the Seydoux-Berlusconi group; one to the English publisher Robert

Maxwell, who owns, among other newspapers, the pro-Labour Daily Mirror; one to public television; and the last to Pierre Desgraupe (an old master of state television quality programs) who has prepared a project for a European-wide cultural channel. In contrast with satellites operating currently, DBS (Direct Broadcast Satellite) is not limited to sending a signal from one station to another. A small parabolic antenna (60 to 90 cm diameter) on a house balcony is large enough to receive it directly. Thanks to its power, it can, in fact, "reflect" dozens of television channels, matching four or more audio channels for each of them.

The satellites travel 36 thousand km over the equator along a geostationary orbit (that is, at the earth's speed) and can send back to broad areas signals broadcast to them from the central station without being disturbed by mountains and borders. In this way, these signals can be compared to sun rays. When the Geneva International Committee assigned each country its own orbital position in 1977, receiving systems were still rather primitive. Each country's DBS covered an earth area more or less restricted to national boundaries.

Now, however, new mini-parabolic antennas can capture DBS broadcast signals far beyond the foreseen limits. For example, TDFL will be received not only by 40 million French, but also by 250 million Europeans, from Britain to Spain, to a large portion of Italy and Germany. It should not be forgotten that small countries such as Luxembourg, Andorra, Lichtenstein, San Marino and Vatican City also have the right to their own place in the sky.

From over there, Berlusconi could easily elude the law which, in Italy, forbids him from transmitting via the airwaves; he could directly broadcast sports, information, and, of course, advertising spots through TDFL to a large part of Italian territory. The problem is something else: Who will pay the costs of such a project? In fact, launching a satellite, which requires a twin backup and another on earth ready to intervene in case of damage, is not a small business: between 300 and 500 billion lire every 7 years, that is, the DBS satellite's average lifespan.

However, it is, above all, the "software" involved that is of concern. A small program such as "La Cinq" costs not less than 300 billion lire and cannot carry the same programming already being broadcast via the airwaves. Who would be stimulated to buy a new parabolic antenna--which will cost at least 1 million lire until they are produced on a large scale--just to see the same programs already available every day? What must still be evaluated is how many advertising customers might be interested in a new channel able to broadcast their spots simultaneously all over Europe. How many of these potential DBS users would there be? And how many billions do they have? It is difficult to say. An approximate calculation is possible: Not more than 10 to 12 percent of the various European markets are presently engaged in investments with companies such as Coca Cola or Campari, which already are launching the same campaigns all over the Old Continent, if not all over the world.

If we estimate that 40,000 billion lire is spent for advertising every year in Europe and that 9-10,000 billion lire is invested in television, the

accounting is easy. DBS may count on a 1,000 billion lire advertising market. The problem is that within a few years a hundred satellite channels will be available, more than a dozen of which are already booked. Should the pie in the sky not increase, it will not be enough to satisfy everybody. In any case, via the airwaves or via satellite plus cable, or via DBS, program production including advertising spots will inevitably be unified, also because it is the only possible way to compete with the U.S. giants. One thing is certain: However the future European television system evolves, Berlusconi will play a decisive role. If the new television and advertising Europe is born, it will have but one capital city: Milan.

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NORWAY

# DOMESTIC PRODUCER DELIVERS COUNTRY'S FIRST DIGITAL EXCHANGE

Oslo AFTENPOSTEN in Norwegian 7 Mar 86 p 39

[Article by Svein Nic. Norberg: "'A Milestone for the Telecommunications Agency': The First Digital Telephone Exchange Delivered"]

[Text] Trondheim, 6 March. "Today we have reached a milestone in what is popularly called the digitalization of the Norwegian telephone system. This milestone marks the fact that the Telecommunications Agency is starting its test program for the first digital telephone exchange supplied by Standard Telefon og Kabelfabrik [Standard Telephone and Cable Manufacturers]," Telecommunications Agency General Director Kjell Holler said when the Telecommunications Agency had its first digital telephone exchange delivered in Trondheim yesterday.

The delivery of this first digital telephone exchange also marks the beginning of high-technology development of the Norwegian telephone system, without parallel in the world, for that matter. In spite of a good half year delay at the supplier's end, General Director Kjell Holler expresses satisfaction over the fact that the Telecommunications Agency now has had delivered the first of a total of 240 self-contained digital telephone exchanges which are to be put in place around the country.

"This exchange, which has 7000 lines, will be a pilot exchange for the rest of the exchanges, with a total of 700,000 lines, which the Telecommunications Agency has ordered from Standard Telefon og Kabelfabrik, and will be the subject of extra-thorough studies. This system test will be carried out in order to study whether the prototype of the exchange has been designed to stand up to the Telecommunications Agency's specifications."

## New Telecommunications Services

If problems do not arise during the testing of the digital exchange, it will be put into service in June and will replace the old telephone exchange which has been in use for parts of downtime Trondheim since 1946.

For the individual telephone customer this will mean that he will gain access to telecommunications services which were previously reserved for those who

today have advanced house exchanges, including teleconferencing, direct dialing and telephone monitoring, while at the same time the waiting time for getting a free line will be eliminated.

To Be Completed in 1989

STK Administrative Director Fredrik Thoresen pointed out during the delivery of the digital exchange that this was an event which was contributing to making Norway one of the leading countries in the world in telecommunications.

Standard Telefon og Kabelfabrik's contract with the Telecommunications Agency-- incidentally, the biggest industrial contract entered into in Norway outside the oil industry--encompasses a total of 700,000 lines and represents an annual investment for the Telecommunications Agency of about four billion kroner up to 1989.

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- END -